

American Aviation

The Air Industry's Pioneer Independent Magazine

RECEIVED
4 JAN 1950

JAN. 1, 1950

ARMY LIBRARY
SERIAL RECOR

A U.S. Jet Program

THE NEW ERA of jet-propelled transport airplanes needs some straight thinking by both industry and government before a competitive operational race gets underway with disastrous results.

Jet power will lead inevitably to one of the greatest single advances in transportation in man's history. But unless its commercial use is ushered in with an immense amount of testing, training and caution, jet will be costly both in lives and the financial stability of airline companies.

In the past five years commercial airline speeds have increased from 180 miles per hour to almost 300 miles per hour. Jet will boost this from between 400 to 500 miles per hour. The adaptation of such high speed aircraft to our already over-crowded airways and to our present airports is one of the greatest problems commercial aviation has ever faced.

The tendency in the past to rush new and faster planes into commercial service—and all too often with less than favorable results—before airways, operating procedures, airports and all other features of commercial aviation are ready for them, must be removed in the case of jet. Too much is at stake. The competitive urge to be "first" with the "finest and fastest" must take second place to a sound program of thorough testing and training.

The natural urge "to catch up with Britain" must be put in proper perspective, too. Britain lost out to the United States in the immediate postwar market for commercial airplanes. Because of this it put all of its eggs in one basket—the jet basket. It has made good progress salted with an enormous amount of publicity. But the real race for jet supremacy is not likely to find the U. S. behind. Already the U. S. has passed up Britain with power plant. One way or another the U. S. will begin building prototypes of transport airplanes soon. The international rivalry is healthy. The major problem is to institute jet transports commercially without setting back the whole field of air transportation.

What constitutes a sound approach to commercial jet?

We think that the answer is a two-part program (see page 8).



Begins 23rd Year in Air Transport

Harold Cray, vice president-traffic of United Air Lines, begins his 23rd year in the air transport industry in February and his 15th year as a United v.p. on January 1. In point of service he is the industry's oldest traffic and sales director. He hasn't been away from his desk because of illness for 20 years and has probably flown more miles on the job than any other executive. (See Page 36).

In This Issue

Mechanic Ratings—Proposed Changes	
To Have Industry-Wide Effects	11
High-Intensity Lights—System	
Seen Stymied by CAA	12
Certification Option—Lightplane	
Makers Would Warrant Own Aircraft	13

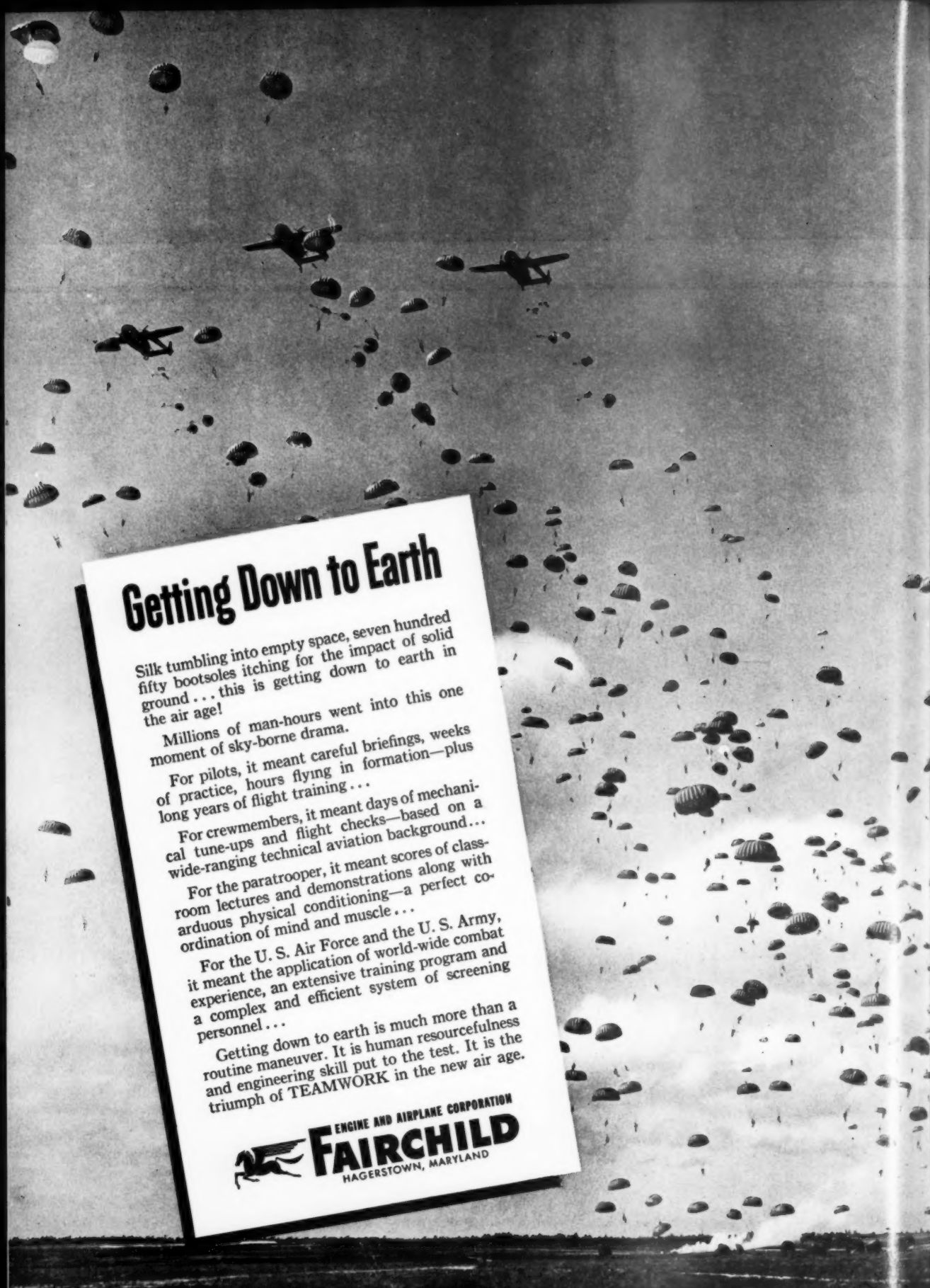
REFERENCE COPY

OTHER AMERICAN AVIATION PUBLICATIONS

AMERICAN AVIATION DAILY

OFFICIAL AIRLINE GUIDE

AMERICAN AVIATION DIRECTORY



Getting Down to Earth

Silk tumbling into empty space, seven hundred fifty bootsoles itching for the impact of solid ground... this is getting down to earth in the air age!

Millions of man-hours went into this one moment of sky-borne drama.

For pilots, it meant careful briefings, weeks of practice, hours flying in formation—plus long years of flight training...

For crewmembers, it meant days of mechanical tune-ups and flight checks—based on a wide-ranging technical aviation background...

For the paratrooper, it meant scores of classroom lectures and demonstrations along with arduous physical conditioning—a perfect coordination of mind and muscle...

For the U. S. Air Force and the U. S. Army, it meant the application of world-wide combat experience, an extensive training program and a complex and efficient system of screening personnel...

Getting down to earth is much more than a routine maneuver. It is human resourcefulness and engineering skill put to the test. It is the triumph of TEAMWORK in the new air age.

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
HAGERSTOWN, MARYLAND

CAPITAL IS FIRST MAJOR U.S. AIRLINE TO USE GOODYEAR CROSS-WIND LANDING WHEELS

First Commercial Installation on New Super DC-3's For Capital Fleet

WASHINGTON—Capital Airlines has just announced that their new Super DC-3's will be the first commercial airliners in the United States equipped with the new Goodyear Cross-Wind Landing Wheel. This pioneer step by Capital foreshadows a new phase in commercial aviation.

The Goodyear Cross-Wind Landing Wheel is the only device of its kind approved by the CAA for commercial twin-engined transports. It is a self-contained mechanism built into the hub of the wheel that automatically compensates for the effects of cross winds on landings and take-offs.

Use of this new wheel will permit Capital Super DC-3's to take off and land in cross winds of high velocity.

Many Other Advantages

Wide adoption of this new device will reduce the expenditure for future airports. Its use will reduce the need for multiple runways and costly duplication of instrument-landing systems, lighting and other controls by making possible the construction of single-strip landing fields.



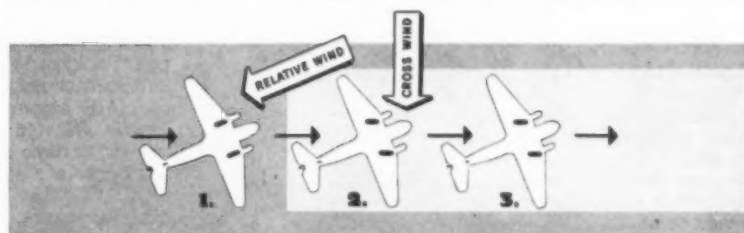
By March, Capital will be operating this new-type Super DC-3 equipped with Goodyear Cross-Wind Landing Wheels.

Can Cut Travel Time

It brings near the day when single-strip airports can be located along waterfronts or close to the heart of many cities. This will encourage greater air travel, by saving passengers millions of hours' ground travel to and from our present-day isolated airports.

The Goodyear Cross-Wind Landing Wheel is now in production for DC-3's and is also available for other aircraft. For complete information write: Aviation Products Division, The Goodyear Tire & Rubber Company, Inc., Akron 16, Ohio or Los Angeles 54, California.

New Gear Permits Landings in High Velocity Cross Winds



1. Final Approach—the pilot establishes proper drift correction angle to line up with the runway. **2. Landing**—The instant wheels touch the ground they caster automatically, due to the ship's forward momentum to line up with direction of the runway. **3. Landing Roll**—Castered wheels maintain straight-line roll down runway while ship safely weathervanes into relative wind.



BACKGROUND & TRENDS

Prototype Outlook Promising

Outlook for **prototype** legislation at next session of Congress seems promising. Although there are divergent views, support for government aid is lining up. **Aircraft Industries Association**, while not committing itself on any particular bill, has gone on record in favor of a government program of purchasing prototypes of advanced type aircraft, the program to be administered by an existing government agency. AIA, incidentally, also favors operation of jet military planes on an experimental mail-cargo route to gather data on difficulties encountered at 500-mph speeds. **Air Transport Association** has adopted a resolution favoring government aid (under Air Force direction in cooperation with scheduled airlines) in construction of a jet prototype transport, a cargo aircraft and a feeder type plane. Recent statements also came from **CAB Chairman Joseph J. O'Connell**, who favors government aid, and **Wellwood Beall**, Boeing's v.p.-engineering and sales, who wants CAA to sponsor construction of jet transports and lease them to the airlines. On the other hand, a committee of men with military background feels the biggest need is for a "merchant marine of the air." Although not discounting need for jets, it wants a separate government corporation to insure continued production of larger type conventional transports for military use during the period before jets are available. **Committee members:** Maj. Gen. Hugh J. Knerr, recently retired as Air Force Inspector General; Capt. C. H. Schildhauer, USNR (Ret.) and Lt. Comdr. Langdon P. Marvin.

No Open Door

CAB officials are taking pains to emphasize that **large irregular carriers** aren't going to receive carte blanche approval for trans-Atlantic group charter operations next summer. They admit that, in line with their recent order, **they'll okay some extra operations**, but add that irregulars will be carefully screened, and that the order says "may" and "will consider approving" and isn't an open-door policy. Certificated lines insist they'll have plenty of seats available on regular flights. Meanwhile, shipping industry was reported up in arms over low Atlantic air fares, but hadn't decided how to meet the threat.

Orders for DC-6B?

Chances of **airline orders for the DC-6B**, elongated passenger version of the DC-6 Liftmaster with seating arrangements for up to 92 passengers, are good. American Airlines is said to be planning to order 12 or 14, with United Air Lines probably buying six. American's B's may be powered by Wright R-3350-C18C engines, developing 2,700-hp (dry) for take-off, instead of Pratt & Whitney R-2800's originally planned for the plane. Added power would increase gross weight and up cruising speed to about 330 mph.

First Use of Gust Alleviator

In discussing the design of the Bristol Brabazon, A. E. Russell, the guest speaker for the 13th annual Wright Brothers Lecture, revealed how some 5,000 pounds weight saving in the wing structure was obtained by the first full-scale use of a **gust-alleviating device**. A unit to detect gusts is **located in the nose** of the airplane some 80 feet ahead of the wing. As gusts are detected, signals are sent to servo mechanisms which move the ailerons symmetrically as flaps to increase or decrease lift in proportion to the gust characteristics.

CAB Mum on Jets

CAB has a lot of answers from U. S. airlines on their thinking about **jet transports**, but it's going to keep them secret. Four months ago, CAB asked airlines what they wanted in the way of jet size, speed, range, etc., whether they'd looked at (and expected to buy) British or Canadian models, and whether they'd talked to U. S. manufacturers about jets. Official reason for the secrecy: the airlines want it that way.

Warner to Resume

Feeling much better, **Dr. Edward P. Warner** is expected to resume his duties as president of the Council of the International Civil Aviation Organization. It had been feared that ill health might force his resignation. Several foreign aviation figures had already been mentioned for the job, and U. S. had some candidates lined up, too.

Reason for Mileage Limitations

Reason why Air Line Pilots Association wants **mileage limitations** in new contracts: ALPA survey showed domestic airlines in 1945 flew 572,519 daily average revenue miles using 4,967 pilots and co-pilots. In 1948, figures were 925,677 and 4,710. ALPA's conclusions: "technological unemployment is establishing its toll" and working conditions are getting "worse and worse."

Answering the Railroads

Railroad criticism of airline competition is ridiculed by Robert Ramspeck, executive vice president of **Air Transport Association**. Airlines performed only 1.6% of total passenger transportation in 1948, and one-half of one percent of freight transport—not enough to cause the rails any serious difficulty, he says, adding that airlines will put their record of public aid against that of any form of transport, providing all will tell all—that "any form of public aid is public aid."

Among the Airlines

Airline traffic slumped sharply during first three weeks of December, putting a number of carriers below the 50% load factor mark. Number one reason was effect of accidents, and contributing were bad weather and normal slump in business travel between Thanksgiving and Christmas . . . **TWA** has no interest in leasing the two Lockheed Constellations from the Navy. Reason: it doesn't want the certification headaches . . . **TWA** is currently trying to decide whether to buy **Convairs** or **Martin 202's** (a pressurized version) as a DC-3 replacement. **Eastern** also considering 202's. Credit for putting 202 back in a strong running position, incidentally, goes to **C. C. "Chet" Pearson**, Martin's president and general manager . . . Prediction is that if airlines' cargo traffic reaches expected level in 1950, **Air Cargo, Inc.**, will show its first profit. Meanwhile, **Ralph Damon**, TWA president, predicts that airlines' cargo ton-miles may "easily exceed" passenger ton-miles within 10 years and that the day may come when cargo dollar revenue will equal dollars paid by passengers . . . President Truman says the administration hasn't reached a decision on **repeal of excise taxes**, which include taxes on transport of persons and property by air . . . Beyond the "wildest flight of fancy" was **Pan American Airways'** comment on **Drew Pearson's** statement that **Clark Clifford**, President Truman's advisor, would join the company's Washington staff.

THIS IS THE XF-91



Made by the makers of the mighty Thunderbolt . . . which set enviable records in the hands of Air Force pilots during World War Two . . . and later, builders of the F-84E Thunderjet now being manufactured in quantity for the Air Force . . . Republic is justifiably proud of the XF-91 presently undergoing flight tests at the Muroc Air Force Base in California. ¶ Conceived and produced to perform as a high speed . . . high altitude interceptor . . . with both turbo jet and rocket power . . . the final acceptance specifications of this great ship will, we are confident, prove to be one more vital weapon in Democracy's arsenal. . . . Republic Aviation Corporation, Farmingdale, Long Island, New York



REPUBLIC AVIATION



Makers of the Mighty Thunderbolt • Thunderjet • XR-12 • XF-91

News in Brief

CAB has approved the acquisition of a controlling stock interest in Callenger Airlines by H. S. Darr, president and principal stockholder of Monarch Air Lines, Inc., and also indicated it would approve a merger of the two local service operators. As a result, Monarch becomes one of the largest feeder carriers in the country with combined routes extending from Billings, Montana, as far south as Albuquerque, totalling 4,107 certificated route miles.

The scheduled airlines and fixed base operators have indicated they will oppose changes in CAR Parts 18, 24, 52 and 53 on the grounds that the new specialized categories for mechanics are not necessary and would greatly increase repair costs on both commercial transports and personal aircraft. An official of the Air Transport Association said the airlines would ask an extension of the deadline date for industry comment from February 1 to at least March 1 because the holiday season would slow up the response from interested segments of the aviation industry. (See details on page 11).

Present orders for Lockheed Constellations will keep the company's Connie production line busy for at least a year and a quarter. Lockheed sold 42 to airline operators during 1949, bringing the company's commercial backlog to \$45,000,000—the highest level reached since just after end of the war.

The old problem of closer coordination of agencies making federal transportation policy come to the fore last month when Secretary of Commerce Charles Sawyer sent to the President his Department's report on "Issues Involved in a Unified and Coordinated Federal Transportation Program." Among the major recommendations made: (1) The whole question of subsidizing airlines and some ship operators should be reviewed. (2) In cases where the government puts up money for "basic transportation facilities," the cost should be loaded eventually onto the users. (3) Subsidies to any common carrier should be labeled as such and not hidden under such cloaks as "air mail payments." (4) Services that don't pay should be abandoned.

Continued existence of the National Aeronautic Association has been placed in the hands of a special committee headed by Frederick C. Crawford, of Thompson Products, Inc. Other committee members are E. E. Wilson, William Anderson, Robert Ramspeck, Paul Vance, and Roger Wolfe Kahn. The group is to come up with an answer by early spring as to whether there is a definite need for NAA or some comparable organization in aviation and, if so, to outline a specific program. Final action on the recommendations will be taken by the membership meeting in St. Louis, June 10-13.

Because of sharp division between the Big Four carriers and the smaller airlines on the subsidy-separation issue, the Air Transport Association, as an organization, has decided on a hands-off policy when legislative proposals are considered by Congress. Robert Ramspeck, executive vice president of ATA, explained that ATA's interest in separation legislation would be confined to seeing that any action taken by Congress be on a fair and equitable basis.

Canadian Pacific Air Lines has announced its order for two deHavilland Comets, the 500-mph British jet transport. Scheduled for delivery late in 1951, the Comets will be used in CPA's North Pacific service from Vancouver, B. C., to Tokyo and Hong Kong. CPA indicates that the new plane will bring the two points within 10 hours flying time and with prevailing westerly winds the east-bound trip will be possible in eight hours. CPA claims the Comet has a range of 4,200 miles but this appears to be very optimistic. Fourteen Comets are on order for British Ministry of Supply.

American Aviation

The Air Industry's Pioneer
Independent Magazine

Vol. 13 No. 15



Jan. 1, 1950

1025 Vermont Ave., N.W.
Telephone—Sterling 5400

Washington 5, D. C.
Cable—AMERAV

Includes AIRPORTS and AIR CARRIERS

Editor and Publisher

WAYNE W. PARRISH

Executive Editor

ERIC BRAMLEY

News Director

LEONARD EISERER

Editorial Associates

WILLIAM D. PERREAU
(Technical Editor)

JAMES J. HAGGERTY, JR.
(Military)

KEITH SAUNDERS

GERARD B. DOBBS

BURDETTE S. WRIGHT, JR.

FRED S. HUNTER

(West Coast)

DANIEL S. WENTZ, II

DALLAS R. LONG

WILLIAM V. HENZEY

Director of Advertising: Stephen R. Kent
Business Manager: John H. Poole

American Aviation is published 1st and 15th of each month by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Mexico, Central and South American countries—\$3.00 for 1 year; \$5.00 for 2 years. Canada—\$3.50 for 1 year; \$6.00 for 2 years. All other countries—\$4.50 for 1 year; \$8.00 for 2 years. Entered as Second Class matter in Washington, D. C., and Harrisburg, Pa.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, president; Albert H. Stackpole, Eric Bramley, David Shawe, vice presidents; E. J. Stackpole, Jr., secretary-treasurer; John H. Poole, assistant secretary-treasurer.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

American Aviation incorporates Airports and Air Carriers, Airports, Aviation Equipment, The American Pilot, Aviation Sales and Service, U. S. Aviation and American Airports. All rights to these names are reserved.

Other Publications

American Aviation Daily (including International Aviation): Published daily except Saturdays, Sundays and holidays. Subscriptions: \$16 one month; \$180 one year. Daniel S. Wentz II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy \$5.00. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, \$9.00 one year; Canada \$9.50. All other countries \$11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. State 2-2154. C. N. Johnson, managing editor.

Air Tariff Reports (Cargo and Passenger): Published daily except Saturday, Sunday, and holidays. Rates on request. William V. Henzey, managing editor.

INDEX

Airline Commentary	25	Local Operations	45
Airports	41	New Products	35
Background & Trends	4	Operations and Maintenance	29
Between the Lines	22	Over the Counter	37
Calendar	21	People	24
En Route	50	Pretested Ideas	44
Extra Section	32	Production Spotlight	23
Index to Advertisers	48	Traffic and Sales	36
Letters	49	Wings of Yesterday	49

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

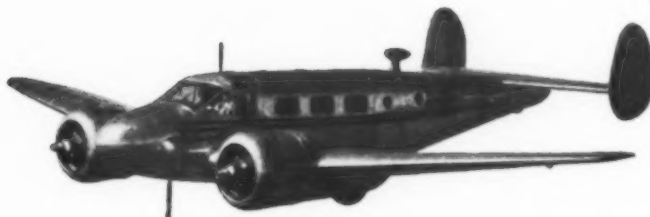


Beechcraft A35

The Beechcraft Bonanza cruises at 170 mph, carries four people in its comfortable cabin. Range is 750 miles; top speed, 184 mph. It combines safety, ruggedness, comfort, economy, speed and performance — is equipped for day, night, and instrument flight.

Beechcraft 18

The twin-engine Beechcraft Executive Transport is relied upon all over the world for fast, dependable performance. This 200-mph plane carries 7 to 9 passengers in luxurious comfort — can be operated readily out of small fields.



They outsold all others in their respective classes during 1949

Beechcraft

for the TOPS in Performance, Strength, Speed, Style, Safety and Comfort

Get the facts about Beechcrafts from one of these friendly Beechcraft Distributors

In the U. S. — ALABAMA—Southern Airways Company, Birmingham . . . ARKANSAS—Little Rock Aircraft Sales, Little Rock . . . CALIFORNIA—Pacific Aircraft Sales Company, Burbank & Oakland . . . COLORADO—Midwestern Aircraft Company, Colorado Springs, Intermountain Aviation, Inc., Denver . . . DELAWARE—Atlantic Aviation Service, Wilmington . . . FLORIDA—Airplane Sales Division, Butler Company, Tampa . . . GEORGIA—Southern Airways Company, Atlanta . . . ILLINOIS—Airplane Sales Division, Butler Company, Chicago . . . INDIANA—Roscoe Turner Aeronautical Corporation, Indianapolis . . . IOWA—Hunter Flying Service, Cedar Rapids . . . KANSAS—Topeka Aircraft Sales and Service, Topeka; Harle Flying Service, Wichita . . . KENTUCKY—Owensboro Aviation, Owensboro . . . LOUISIANA—J. D. Reed Company, Inc., New Orleans . . . MASSACHUSETTS—Atlantic Aviation Corporation, Bedford . . . MICHIGAN—Francis Aviation, Lansing . . . MINNESOTA—Gopher Aviation, Inc., Rochester . . . MISSOURI—Fabick Aircraft Company, St. Louis . . . NEBRASKA—Prairie Airways, Inc., Lincoln & Omaha . . . NEW JERSEY—Atlantic Aviation Corporation, Teterboro . . . NEW MEXICO—Cutter-Carr Flying Service, Inc., Albuquerque . . . NEW YORK—Page Airways, Inc., Rochester . . . NORTH CAROLINA—Hawthorne Flying Service, Greensboro . . . OHIO—Ohio Aviation Company, Vandalia . . . OKLAHOMA—Aircraftmen, Inc., Oklahoma City; Tulsa Distributors, Inc., Tulsa . . . OREGON—Flightcraft, Inc., Portland . . . PENNSYLVANIA—Wings, Inc., Aspler . . . SOUTH CAROLINA—Hawthorne Flying Service, Charleston & Columbia . . . TENNESSEE—Cook's Aero Service, Alcoa; Capitol Airways, Inc., Nashville . . . TEXAS—Tradewind Airport Corporation, Amarillo; J. D. Reed Company, Inc., Dallas & Houston; G. E. Penn, Longview; Alamo Aviation, Inc., San Antonio . . . UTAH—Altair, Inc., Salt Lake City . . . WISCONSIN—Anderson Air Activities, Milwaukee . . . WYOMING—Casper Air Service, Casper.

and Abroad — ANGOLA—SOREL, Luanda . . . ARGENTINA—Will L. Smith, S.A., Buenos Aires . . . BELGIUM—Intair, Ltd., Antwerp . . . BRAZIL—Companhia Carnascoli Industria e Comercio, Rio de Janeiro . . . CANADA—World Wide Aviation Agencies & Sales, Inc., St. Johns, Quebec . . . CHILE—Bunster y Bonilla, Ltda., Santiago . . . CHINA—Wah Chang Trading Corporation, Shanghai . . . CUBA—Dr. Gustavo S. de Bustamante, Havana . . . EGYPT—Misrair, S. E., Cairo . . . FRANCE—Victor Helfenberger, S.A. Somatex, Paris . . . INDIA—Indamer Co., Ltd., Bombay . . . IRAN—Habib Sabet, Teheran . . . MEXICO—Jorge Pasquel, Mexico, D.F. . . MOROCCO—Airco, Tanger . . . NETHERLANDS—Technische Handelsmij, Hollanda N.V., The Hague . . . PARAGUAY—Nicolas Bo, Asuncion . . . PERU—Inter-Continental Trade Co., S.A., Lima . . . PUERTO RICO—West Indies Airways, San Juan . . . SIAM—Siamese Airways Company, Ltd., Bangkok . . . SOUTH AFRICA—Aviation Corporation of Africa (Pty) Ltd., Johannesburg . . . SWITZERLAND—Groupeement Suisse de Representation Aeronautique, Neuchatel . . . TURKEY—Kontlato Turkish Company, Ltd., Istanbul . . . URUGUAY—Pike and Co., Ltd., Montevideo.

period of operating jets *without passengers* over every part of the country in all possible kinds of weather and at all altitudes and under all operating procedures.

Such a testing operation might require as much as three years. Mail and cargo could be carried to help justify the cost. Technicians of the airlines, the manufacturers and the government should be on board all flights. There is an enormous amount of information yet to be learned about high-speed transports in the 400 to 500 m.p.h. class. The time to learn this information is prior to their use by the public, not after.

It isn't necessary to wait for actual jet transports before this testing period can be started. With the cooperation of the Air Force, why not operate mail-carrying jet bombers over the airways now to study jet's place in air traffic control procedures, instrument let-downs, and handling at airport ramps. The Air Force has such suitable planes as the North American B-45 and no operational evaluation program except for bombing.

It would be relatively easy for the federal government to work out a program with all of the major airlines in the country giving each airline a portion of the testing program.

Every airline executive fears a competitive equipment race. Yet no airline feels it can afford to be behind its competitor. The only way to resolve this natural rivalry is for the government to take the leadership in setting up an integration policy and a long program of non-commercial operation.

It is probable that jet transports will see their first commercial use outside the U. S. but this should be no cause for alarm. Many areas of the world are more readily adaptable to the use of jet because of absence of heavy air traffic and because of better all-year-round weather conditions. Some of the worst flying weather in the world is found within the United States, a factor which makes it all the more important to "go slow" until we're ready.

Meantime it behooves the U. S. not to wait too long in the building of jet transports, else Britain may capture the major share of foreign markets. The chances of any U. S. airline buying British jets is virtually nil, and the British have a long way to go before their jets are proven to be economically sound. Yet the U. S. might wait too long.

Assistance from the federal government is a vital factor in the same way that British manufacturers could not have moved ahead without great assistance from their socialized government. Just how this assistance is to be worked out is still a question, but we suggest that the airlines of the United States contribute in some way to the prototype cost or to the testing. A development fund raised within the industry would be well received.

Better to keep the present coast-to-coast schedules at nine and ten hours than to rush headlong toward a five and six hour schedule with disastrous results. The airline accident record of the past twenty years would look much better today if a policy of thorough and lengthy advance operational

testing had been undertaken as each new model came from the factory doors.

Federal Aid: How Far?

HOW FAR should the government go in aiding the development of light airplanes?

Ever since the CAA and the Department of Agriculture embarked on the development of a prototype agricultural airplane at Texas A. & M. the pros and cons have been making the rounds.

Certainly those who endorsed the project don't favor intentionally either socialism or nationalization. We doubt, too, that the top CAA officials favor the government going into lightplane production and CAA Administrator Rentzel is on record as opposing any such move.

Yet there are fears being expressed that the Texas A. & M. project may go a step too far. The same people who are expressing those fears do not oppose research and experimentation by the government. What they fear is a trend toward nationalization.

It all boils down to the amount of help which the federal government can give to the personal airplane without moving toward socialization and freezing of aircraft design to the exclusion of private enterprise.

The dividing line of what is good and what is bad is pretty thin, but we are inclined to go along with the protestants that the line is there and should be adhered to. This line is the tooling up procedure for airplane construction.

Let Texas A. & M. build a prototype but let this be the final end of this particular project. Engage in research and experimentation and make the results available to all. Engage the facilities of the NACA and the Army Ground Forces and any and all agencies and organizations—but stop at the tooling-up level.

There are too many in the lower brackets of government who would like to get their mitts on airplane designing. They've done enough to strangle airplane design as it is through certification regulations despite the efforts of Administrator Rentzel to break the stranglehold. The government can do a lot to help—but beyond a certain point the help becomes complete domination and dictation. The agricultural airplane project in Texas is fine as it was initially set up, but it can easily, all too easily, go overboard.

Worthy Choice

NO FINER choice for the first Wright Memorial Trophy could have been found than Charles Augustus Lindbergh. The committee, headed by John Victory of the NACA who made the selection on behalf of the Aero Club of Washington, is to be highly commended for honoring a man who belongs to aviation and has contributed much to it. It isn't often when such an award can be so universally acclaimed.

WAYNE W. PARRISH

AMERICAN AVIATION

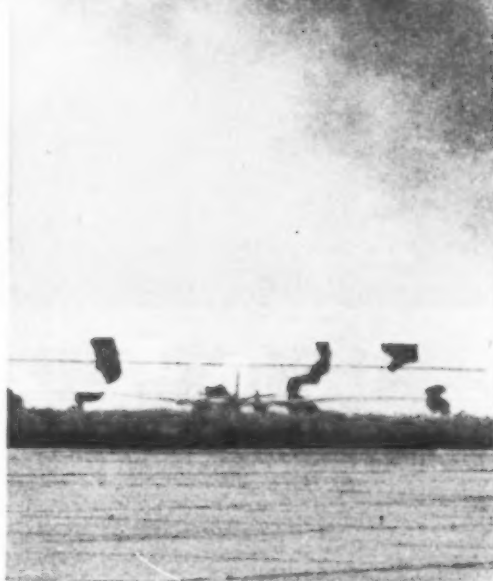


To Support the Ground Forces

THE high-speed Martin XB-51

is the Air Force's first postwar plane specifically designed for blasting enemy supply lines and installations in support of ground forces. In addition to its unique power plant arrangement, this revolutionary new plane has drastically swept-back wings, a T-shaped tail and tandem landing gear... plus many features still classified under military security regulations.

This trail-blazing aircraft is a typical product of the highly skilled engineering team Martin offers its customers today. Mathematicians, physicists, servo-mechanism experts, electronic, metallurgical and aeronautical engineers... all pool their talents as Martin extends research frontiers in advanced design aircraft, rocketry, jet propulsion, supersonic missiles and other far-reaching developments. **THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.**



Martin
AIRCRAFT

Builders of Dependable  Aircraft Since 1909



Airline tells why it switched to B. F. Goodrich brakes

WEST COAST AIRLINES switched its DC-3s to B.F. Goodrich brakes in December, 1948. Months later, an eastern airline asked West Coast how it liked them. Here's the reply:

"We operated two years with another type of brake. The maintenance was extremely high on them... If we had 100 hours of service out of a brake drum, we were fortunate. Linings would last approximately 400 hours, spiders or brake cylinders 600 to 1000 hours with two hone jobs in between.

"We installed B. F. Goodrich brakes... Since we have been using

these brakes, we have a total of 800 hours service per plane and have only removed one brake assembly. This assembly was removed because of a broken block spring.

"While replacing this spring, we measured the blocks to see how much wear we were getting. We found that they had only worn .002 in a total time of 534:14 hours.

"We have smoother operation, lower maintenance cost and more reliable brakes..."

APPROVED FOR SUPER DC-3

About 2/3 of all DC-3s in U. S. airline operation are now equipped

with B. F. Goodrich Expander Tube brakes. These planes can continue to use BFG brakes with CAA approval, when converted to Super DC-3s. B. F. Goodrich wheels and brakes are also available on request as original equipment on the new Douglas Super DC-3. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER

AMERICAN AVIATION

Industry-Wide Effects:

Greater Specialization Coming In Aircraft Repair Work

By WILLIAM D. PERREAULT

A major rework of the existing structure for the maintenance, repair and alteration of aircraft has been proposed by the Civil Aeronautics Board in regulation changes now being circulated to the industry for comment.

The changes affect every individual and organization engaged in this type work including the mechanic, private pilot, certificated repair station, airline and manufacturer. The trend is toward increased specialization.

Basis of the change is the reclassification of the 60,420 certificated mechanics to replace existing aircraft and engine (A&E) ratings, which now cover all types of work, with three additional major categories and several sub-ratings. Added as new ratings are classifications as radio, instrument and accessory mechanics.

Instruments are further specialized into mechanical, electrical and gyroscopic groups with the accessory ratings divided into mechanical and electrical categories.

Industry Comment Sought

CAB is allowing until February 1 for industry comments on all four Parts, and expects the regulations to be fully effective on January 1, of 1951. In the meantime, assuming the changes are adopted, CAA would be expected to issue interpretations of various provisions of the regulations and a gradual transition from one standard to the other would be effected.

All existing certificates for mechanics, repair stations and mechanic schools would be exchanged for appropriate ratings under the new provisions.

Under the provisions of the new Part 18 manufacturers engaging in maintenance repair, overhaul and alterations of aircraft would be required to obtain a repair station rating and employ certificated airmen to perform appropriate duties. This is the first time such a provision has been actively sought.

Lower Maintenance Costs

Another provision of revised Part 18 would permit a pilot to perform preventive maintenance on aircraft owned and operated by him. Preventive maintenance is described as simple or

minor preservation items and replacement of small standard parts not involving complex assembly operations. This should reduce the cost of private aircraft operating expenses and might have a favorable effect on the light plane industry.

Flight testing of aircraft following maintenance work has been liberalized in Part 18 with tests required only after major repairs or major alterations. Further, the regulations would permit any certificated pilot, with the appropriate aircraft rating, to conduct the test flight, rather than requiring a pilot with at least 200 hours flight time.

For some time special regulation 332 has provided for a limited mechanic certificate with propeller rating. Now scheduled to expire on December 31, the proposed regulations would extend SR 332 for six months or less until the new provisions are effective. Revised Part 24 would require written, oral and

practical examinations for airframe, powerplant and propeller ratings but either written or oral and practical for the instrument, accessory and radio ratings.

Independent of Employer

Unlike the original propeller rating provided for in SR 332, the ratings for the latter three categories would not expire when the holder switches employers but would remain in effect until surrendered, suspended, revoked or terminated by the Board.

While mechanic certificates will not be endorsed periodically by CAA, a mechanic will be required, under the proposed regulations, to serve under the terms of his certificate and ratings for at least six months out of every 24 month period or satisfy representative of CAA that he is competent.

Mechanical experience requirements for the various ratings have been changed. For either airframe, powerplant, accessory, or radio ratings, 18 months experience in the exclusive performance of related duties would be required while for either propeller or instrument ratings 36 months experience is the minimum.

Thirty months concurrent experience with aircraft and engines would be considered meeting the requirements for both ratings. Only 18 months credit will be given applicants based on graduation from approved propeller or instrument courses but graduation from courses covering the other ratings will be considered equivalent to the mechanical experience required.

Repair Station Ratings

Provisions of the proposed Part 52, Repair Station Certificates, include new ratings for radio, instruments and accessories and for performance of specialized services. Repair stations with airframe ratings are grouped into four categories, composite construction up to and including 12,500 lbs., composite construction above 12,500 lbs., and all metal aircraft in each of these groups.

Power plant ratings for repair stations fall into three groups; engines up to and including 400 horsepower, engines above 400 horsepower and jet engines. A general rating will be issued for fixed pitch propeller repair stations but otherwise repair stations will be individually rated for all other types by make and model.

The nature of these new classifications and the extent to which they affect all phases of aircraft repair and maintenance work indicates that there will be major industry reaction to the proposed regulations.

Equipment Categories Defined

Of prime importance in interpreting the effect of these proposed regulations on the industry is the definition applied to the various categories of equipment dealt with in the regulations. This is particularly interesting in the classification of radio, accessories, instruments and aircraft.

Radio—an appliance, other than radar, for the transmission and reception of signals by means of electric waves without connecting wires.

Accessory—an appliance other than a radio or an instrument, including radar and devices for the automatic control of aircraft in flight.

Instrument—a device utilizing internal mechanism to indicate visually or aurally the attitude, performance or operation of an aircraft or any component thereof.

Aircraft—any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air, including airframe, powerplant, propeller and appliances.

High-Intensity Light System Seen Stymied by CAA

By KEITH SAUNDERS

Frequently accused of being an extravagant and wasteful agency, the Civil Aeronautics Administration has been seemingly pinching pennies with regard to one of the essential components of an all-weather flight system—high-intensity lights—in the judgment of some airport people and others in the industry.

CAA's actions and inactions in this respect were brought to focus in *American Aviation Daily* following a Capital Airlines accident at Washington National Airport in which six persons were fatally injured on December 12. The pilot missed the approach during a heavy fog and the DC-3 plunged into the Potomac River. High-intensity approach lights such as those used so successfully in the Berlin airlift were then available and might possibly have averted that accident, the *Daily* declared.

What are the facts about high-intensity lights? How far behind is the program and why?

First, it is necessary to break the subject down into two parts—(1) high-intensity approach lights and (2) high-intensity runway lights. The former are entirely or largely outside the confines of an airport and are a designated part of the Federal Airways System. They are wholly a responsibility of the CAA. The latter are the responsibility of airport sponsors, who may ask CAA to share in their cost through a Federal-aid airport grant.

Approach Lights

Let's consider approach lights first. It was recognized some time ago that a pilot approaching an airport in instrument weather needs not only a localizer beam and a glide path indicator but also some visual directional indication to reassure and guide him just before breaking through the overcast on final approach. It was agreed that the need was for some system of high-intensity approach lights capable of penetrating rain, ground haze and fog for a vertical distance of several hundred feet.

In the early postwar period, the Air Force came up with functional or performance specifications for such a lighting system.

After being tested for several months at the Army-Navy-Civil Landing Aids Experiment Station at Arcata, Calif., high-intensity lights manufactured by the American Gas Accumulator Co. of Elizabeth, N. J., were deemed successful and the Civil Aeronautics Administration placed an order with AGA for 61 of the lights. These would be used to set up two rows of lights, one on the approach to the principal instrument runway at Washington National Airport and one

at Los Angeles Municipal Airport. A 3,000-foot row of piers or platforms for these lights was installed in the Potomac River off the south end of runway 36 at National Airport in the summer of 1948.

Loaned to Airlift

Then on September 17, 1948, when the lights were on the factory floor and ready for delivery, CAA received a request from the Air Force, which had an order pending for similar lights, for a "loan" of its (CAA's) high-intensity lights. Air Force said the lights were urgently needed to facilitate landings of airlift planes at Berlin's Tempelhof Airport, and promised "repayment in kind" from its own order within 60 days. So National Airport's lights went to Tempelhof.

It was at about this time that the ANC committee announced a new approach lights standard, based on further tests at Arcata, and the AGA lights did not meet this standard. A system that did meet them was the slope-line approach light system developed by two CAA lighting engineers.

Furthermore, CAA said, the slope-line system would be made up of standard components and would be very cheap—about \$40,000 per airport. The result of this decision was that, when the Air Force offered to repay the AGA lights

it had borrowed, CAA decided in favor of a cash settlement.

System Dropped

So the high-intensity approach light system which CAA had decided upon in the spring of 1948 was tossed aside, and throughout the fall and winter fog season of 1948-1949 both Los Angeles and Washington had no high-intensity approach lights. At the latter, the pilings built for the system served only as a roosting place for gulls. At the former an airliner had a landing mishap due to inability of the pilot to see the runway because of ground fog.

After countless delays, including a squabble with Potomac boatmen whose channel was being invaded, CAA finally got the last piling for its slope line system driven a few days after the Capital Airlines accident, and the contract for installation of the lights was let.

Three weeks earlier, the first slope line system had been put into operation at New York International Airport at a cost of \$650,000 for the piers alone. At Los Angeles, the system was to have gone into operation this week. With luck, the one at Washington may be completed in late February and its cost will be—not \$40,000—but \$153,000, including \$45,000 for the lights, \$45,000 for the installation and \$63,000 for the piers.

Runway Lights

With regard to high-intensity runway lights, the story is fully as complicated.

The complication here stems from certain patents held by J. B. Bartow which seemingly cover just about every pres-



11 Presidents Meet

Presidents of 11 scheduled air carriers, five of whom were speakers, discussed major phases of their operations at a recent meeting in Chicago sponsored by the Association of Commerce and Industry. Left to right, front: F. M. Higgins, Wisconsin Central; Leverett Lyon, Association of Commerce; E. V. Rickenbacker, Eastern; W. A. Patterson, United. Back row: C. E. Woolman, Delta; J. H. Carmichael, Capital; R. S. Damon, TWA; S. A. Stewart, Chicago & Southern; G. R. McGregor, Trans-Canada; C. R. Smith, American; T. E. Braniff, Braniff Airways, and T. H. Reidy, Helicopter Air Service.

n favor

ch light
upon in-
de, and
og sea-
les and
ity ap-
piling
y as a
former
due to
runway

ding a
whose
finally
ne sys-
Capital
ract for

pe line
ation at
t at a
ne. At
o have
With
may be
its cost
00, in-
0,000 for
e piers.

runway
licated.
om cer-
y which
pres-



were
ns at
lustry.
on of
C. E.
icago
raniff,

ATION

ent-day type of runway lighting system. Last spring, the Welsbach Corporation in Philadelphia acquired exclusive rights to Bartow's patents and promptly served notice to all manufacturers of high-intensity lighting units that all future installations of such lights would be in violation of the patent rights unless Welsbach were paid a royalty fee of 80c per linear runway foot.

CAA subsequently ordered the suspension of all runway lighting projects pending the outcome of investigations into the Bartow-Welsbach rights.

This order was still in effect in late December, and dozens of cities with high-intensity runway lighting projects either planned or under way, have had to go all these months without even a start being made toward installing lights that are deemed needed for safest operations at their airports.

Only One Runway

Most airports want high-intensity lights on one runway only—the instrument runway—and most such strips are 4,000 to 6,000 feet long. Assuming an average of 5,000 feet, the royalty fee per installation would be \$4,000, and CAA only recently announced that it regards high-intensity runway lights as being so important that it will pay up to 75% of the cost of such light through Federal-aid airport grants. The cost to CAA, therefore, would be from \$2,000 to \$3,000 per airport, and most of the airport sponsors would probably not object to paying the difference.

CAA indicated it is bothered more by the principle of the matter than the actual dollars.

In this matter, it's a question of whether CAA should lift its suspension of high-intensity runway lighting projects, regardless of royalty fees, or whether it should continue to hold up such projects indefinitely, regardless of their urgency, and hope to find a way out of paying the 80c-a-foot fee to the patent holder.

Maybe CAA has taken the right position in this heretofore unnoticed concern for the taxpayer, but the fact remains that its refusal to pay \$2,000 or so per airport is causing many airports to be without landing aids that they need.

High-intensity approach lights and high-intensity runway lights will come along eventually, but CAA, which has the principal say-so about such installations, apparently is in no great hurry about getting them in.

Navy Pilot Blamed by CAB in EAL Mid-Air Collision

Probable cause of the mid-air collision between an Eastern Air Lines' DC-3 and a military F-6-F-5 over Chesterfield, N. J., on July 30 has been established by the CAB as "the reckless conduct of the Navy pilot in performing acrobatic maneuvers on a Civil Airway and his failure to notice the presence of an air carrier aircraft with which he collided."

Relief from CAA Regulations Due Lightplane Producers

Early this month members of CAA's Office of Aviation Safety will meet to discuss the details of a program which will offer some degree of relief from regulatory restrictions to manufacturers of light aircraft.

The program would provide the manufacturer of airplanes of 5,000 pounds gross weight or less, carrying five or less passengers, with the option of certifying their own aircraft or continuing with existing procedures.

Under the proposed terms of the offer, this privilege would only be available to a manufacturer who has previously designed and had certificated an airplane in this class and who has produced a series of the type under a production certificate.

This means that a newly formed corporation, such as the Helio Corp., manufacturers of the famed Heliplane, could not use this program unless through affiliation with an established lightplane manufacturer.

Application to participate in the new certification program would be filed through the Aircraft Division, Office of Aviation Safety via the appropriate regional office. If the manufacturer meets the general requirements, he is notified accordingly and will have to conduct the required engineering design and investigation of the aircraft in concern.

Manufacturer's Warranty

CAA will issue a type certificate on the basis of the manufacturer's warranty that the type meets provisions of Part 3

of CAR and mandatory notes relating to the type. The technical file normally maintained by CAA would become the responsibility of the manufacturer who would be required to make it available to CAA on request.

When the manufacturer further warrants that the new type meets the requirements of the production certificate, a new certificate or an amendment to existing certificate, will be issued by CAA. Once the aircraft is in service, CAA will maintain the customary record of service difficulties and work with the manufacturer to correct any difficulties.

Airworthiness Directives will be issued by CAA to cover any condition which investigation of the record indicates should be corrected. CAA will notify the manufacturer if the aircraft fails to comply with the requirements and in an emergency could ground an airplane until adequate corrective action was taken. In the case of serious non-conformity the privileges of the manufacturer under the program will be withdrawn until corrections are made. In some instances CAB might be called upon to revoke the type and production certificates of a given airplane.

This is the first phase in a continuing program which CAA is initiating to place more responsibility upon the manufacturer "for the quality and integrity of his product." The ultimate program is dependent on extensive changes in CAR and will require considerable time before finalization.



Inspecting Cargoliner— This crowd waiting to go through a United Air Lines freighter is typical of the lines that formed outside the numerous airline planes displayed during the recent Air Transportation Day open house event at Los Angeles International Airport. The event drew close to 200,000 people. It was sponsored by the Junior Chamber of Commerce, assisted by the airlines, the military, the CAA and Weather Bureau, and others on the airport.

Convertible Airplane Changes Wing Structure In Flight

By JAMES J. HAGGERTY, JR.

Quite a few people who attended the First Convertible Aircraft Congress at Philadelphia's Warwick Hotel on December 9 admitted that they had gone to the convention without a very clear idea as to just what a convertible airplane was.

A convertible, in case you've forgotten, is an airplane which converts in flight; that is, it may be converted from an airplane to a gyroplane or a helicopter and back through the same cycle at will. The advantages of this type of plane, both from the standpoint of utility and safety, are obvious.

At the moment, it was learned during the Congress, there are not too many active convertiplane projects. The Navy built one, the Chance Vought XF5U-1, during the war, but this project now appears to be dormant. One small company, Transcontinental Aircraft Co. of Newcastle, Del., is actually assembling a convertible, but the designer is keeping mum about it, because "it isn't far enough along."

Built Successful Plane

One of the most active projects, and the one on which attention in convertible plane circles seems to be focused, is the Convertiplane Corp.'s HC-6D. The HC-6D stands a notch or two above the other designs in the field because its builder, Gerard P. Herrick, has already constructed one convertiplane which actually converted in flight. This was the Herrick HV-2A, which made its successful conversion flights in 1937.

The HC-6D is not yet under construction, but it has successfully passed a series of wind tunnel tests which demonstrated that the design is a practical one. Until now, Herrick has personally financed his convertible program, which included the actual construction of two convertiplanes, the HV-1 (1931) and the HV-2A, as well as design and wind tunnel work on the new HC-6D. Herrick now plans to enlist outside financial aid; he states, however, that prospects of financing the construction of the HC-6D are excellent.

Becomes Extra Wing

The new Herrick convertiplane is a two-to-four place personal plane grossing 3,450 pounds. The plane has a twin-boom fuselage, resembling a miniature of the Fairchild Packet, and it is powered by a single Lycoming 300-horsepower pusher-type engine located behind the cabin. It has a bi-plane effect, with a short, gyro-style wing located about mid-fuselage and a larger roto-wing, or

rotor, mounted helicopter-fashion atop the fuselage.

To fly the plane as an ordinary airplane, you simply keep the rotor locked in a fixed position, and use it as an additional wing. If you want vertical flight, you release the lock by a control in the cockpit and your top "wing" becomes a rotor.

To provide the rotary motion, the HC-6D is equipped with a pair of 260-pound-thrust pulse-jet engines, located in the rotor tips. One of these pulse-jets thrusts toward the rear, the other forward, to produce rotation. The pulse-jets will be of the type used by American Helicopter Corp. in its pulse-jet helicopter, the "Top Sergeant."

The HC-6D will have a forward speed range of from 0 to 200 miles per hour, with a normal cruising speed comparable to that of existing lightplanes. Range will be from 400 to 800 miles.

Herrick has acquired a 60 by 30-foot hangar and field facilities in Philadelphia and plans to begin work on actual construction of the HC-6D as soon as the financing details can be worked out. He has already acquired some of the components, such as the engine.

Plane Changes Axis

Herrick's design, in which the rotor becomes a fixed wing when not in use, is not the only convertible design. The XF5U-1, known popularly as the "Flying Pancake," is an example of a different type of convertible; here the entire airplane changes its axis. The XF5U-1 was designed to hover in a

vertical position or fly forward in a normal attitude. It was able to do this because of its high lift design, in which the fuselage and wings were blended into one pancake-like airfoil.

Another type of convertible is the design wherein the rotor retracts into the fuselage when not in use; in still another design, the rotor pivots from a horizontal axis to a vertical axis, depending on the type of flight desired. The various convertible configurations were discussed at the Congress by Viscount Louis de Monge de Franeau, a consultant to Pennsylvania Aircraft Syndicate.

A number of these designs were in evidence in model form at the Congress, but there was no indication that any of them had progressed beyond the design stage. As in any other type of aircraft development, the problem is money—there is little or no financing available for convertiplane builders.

No Military Funds

Maj. Gen. Donald L. Putt, Air Force director of research and development, dashed whatever hopes the convertiplane enthusiasts might have had for military support when he said that the Air Force was admittedly interested in convertiplanes and their implied military uses, but that budget priorities precluded any possibilities of Air Force development financing. Rear Adm. C. M. Bolster, Assistant Chief of the Navy Bureau of Aeronautics for Research and Development, and Maj. Dave Cogswell, Army helicopter expert, made similar statements in behalf of their respective services.

Recognizing the money problem, the Congress resolved that the government be asked to provide \$10,000,000 for convertiplane development.

About 200 persons, mostly rotary wing personnel, attended the one-day Congress, which was conducted by E. Burke Wilford, president, and chief engineer of Pennsylvania Aircraft Syndicate, Ltd.



DRAWING OF Convertiplane Corp.'s HC-6D, which has completed wind-tunnel tests and is ready for construction. The upper wing, or rotor, revolves for helicopter operation, powered by two 260-lb. pulse-jet units at the tips.

Major Cases Among Board's 1,100 Unfinished Proceedings

By WILLIAM V. HENZEY

A key to the economic future of the airline industry may well exist in the mass of accumulated docket matter currently awaiting action by the Civil Aeronautics Board. Approximately 1,100 undecided proceedings, including route applications, proposed mergers, interchange agreements, exemption requests, mail rate applications, foreign permit applications, and CAB-instituted investigations, blanket the Board's calendar for 1950.

At the present rate of increase, this number will jump to over 1500 by the end of 1950, but meantime, some 300 currently-pending cases will have been decided. These, in part, will contribute to the re-shaping of the airline industry's structural design; extreme in some cases—minute in others.

PAA-AOA Merger

Among the major cases on which a decision can be expected this year, possibly by early spring, is that involving the proposed purchase of American Overseas Airlines by Pan American Airways for \$17,450,000 cash. Known generally as the North Atlantic Route Transfer Case, it was to have been reported on last week by Examiner Thomas L. Wrenn. Remaining procedural steps involve exceptions to the examiner's report, briefs in support of these exceptions, and oral argument. Also, since it involves international routes, it must be approved by President Truman before the final Board decision is made public.

Opposed strongly by Trans World Airline, and by a group of AOA employees, the outright absorption of AOA by Pan American would reduce the number of U. S. flag carriers operating trans-Atlantic routes to two—PAA and TWA. Should the Board disapprove the transaction, best estimates are that the trans-Atlantic route pattern will not be materially altered until present certificates expire in 1952, except for possible all-cargo route grants.

National Dismemberment Case

Another in which hearings are slated to be resumed this month is the National Airlines Dismemberment Case, which started out as a CAB investigation to determine if National or some other line was best fitted to operate the route originally awarded to National, but which now embraces a PAA-Panagra-NAL interchange proposal and stock participation in NAL by both PAA and Panagra.

Already over a year old, the proceeding was slowed down last March when

the interchange and stock participation elements were interjected. Earliest estimate for a decision by the Board is mid-summer.

Hinging on the outcome is the possible entry of Pan American into the domestic field for the first time, not by receipt of a certificate, but via the equipment interchange route. Similarly, if the interchange agreement is approved, Panagra will be able to operate its planes through Miami to and from New York and possibly Washington. Other possibilities include transfer of portions of National's routes to Eastern Air Lines, Delta Air Lines, PAA, or some other "fit, willing, and able" carrier, or the continued operation of the routes by National itself, without any change. With other such "dismemberment" proceedings hanging in the balance, the result of this case is of vital import to the entire industry.

Parks Investigation

Then there is the inflated Parks Investigation Case which started out as a simple merging of Parks Airways, a certificated but inactive feeder-line, into Mid-Continent Airlines, a north-south trunk-line. Currently awaiting an examiner's report, the case has grown to include applications of numerous companies which seek to operate any or all of Parks' three route segments which extend from Tulsa and Memphis in the south to Minneapolis/St. Paul in the north, totalling 4,003 route miles.

Actually the case was touched off when CAB issued an ultimatum to Parks to start operations by July 1, 1949. This led to the proposed merger with MCA, and finally to the present omnibus proceeding when unsuccessful route applicants in the original cases in which Parks was awarded certificates, were advised of eligibility to try again. Thus, the final decision may find the Parks routes awarded in one-third portions to any of the applicants, or it may find

MCA absorbing Parks, or it may find Parks operating the routes on its own.

Although no estimates are available as to when a decision can be expected, the demand for service by the communities on Parks' routes is assurance the Board will act as quickly as possible.

Atlantic Cargo Applicants

Also of particular significance is the so-called U. S. Europe-Middle East Case which involves applications of Seaboard & Western Airlines and Transocean Air Lines for all-cargo route certificates between the U. S. and points across the Atlantic. This has passed through the prehearing conference and public hearing stages, and is currently awaiting the examiner's report. It should be decided early this year.

Both lines are presently engaged in international freight operations under letters of registration issued to so-called large irregular carriers. Receipt of certificates would not only permit operations without the non-scheduled limitations imposed by CAB, but would add a degree of permanency to the authorizations necessary to conduct airline services.

Other major proceedings which should be closed this year include the controversial Montreal-New York Route Case (which, aside from pending court issues has also involved inter-country relations); the New York Area Helicopter Service Case; the Transcontinental Coach Type Service Case; and, the Service to New England Case.

'Policy' Proceedings

Somewhat lost in the shuffle are nine proceedings started by the Board itself last February when it issued its well-known Policy Statement for 1949. Eight of these are listed in CAB's pending docket record among several hundred other "proceedings" entitled "miscellaneous." The ninth was subject of a prehearing conference on October 17, 1949, but still has a long road to travel.

Actually, there were fourteen proceedings instituted by the Board at that time, and only those involving mail rate payments have been processed. Included in those listed as "miscellaneous," are:

(a) an investigation of the "Big Four;"

Status of Major Cases Pending Final Cab Action

Docket	Title	Status
1803....	PAA Domestic Routes Case	Submitted for decision, 7-22-48
2434....	Freight Forwarder-International	Submitted for decision, 6-4-48
1789....	Milwaukee-Chicago-N. Y. Restrict. Case	Submitted for decision, 9-12-49
2572....	Service to New England Case	Submitted for decision, 10-25-49
2123....	New York-Puerto Rico Case	Awaiting examiner's report
3964....	Montreal-New York Route Case	Awaiting oral argument
1102....	Southern Service to the West	Awaiting examiner's report
3853....	Service to Toronto Case	Awaiting examiner's report
3977....	MAL-Arizona Merger Case	Awaiting examiner's report
3589....	North Atlantic Route Transfer Case	Awaiting examiner's report
3782....	Parks Investigation Case	Awaiting examiner's report
3041....	U. S.-Europe-Middle East Cargo Case	Awaiting examiner's report
946....	New York Area Helicopter Service Case	Hearing, January 16, 1950
3397....	Transcontinental Coach Service Case	Hearing, January 4, 1950
3500....	NAL Dismemberment Case	Hearing, January 17, 1950

(b) an investigation of joint use of ground facilities; (c) dismemberment proceedings against Western Air Lines and Northeast Airlines; (d) Chicago-Washington and New York-Detroit route segment investigations; and, (e) a class cargo rate investigation.

Energetic as the program was, its fulfillment was delayed by severe budget cuts and unforeseen developments such as the aircoach trend and occasional congressional intervention which absorbed a substantial portion of the Board's available time.

Add to this the 90-odd non-scheduled airline exemption requests and CAB-invited trans-Atlantic charter exemption applications, all of which must be given Board attention, and the possibilities of action on the 1949 policy, even during 1950, seem pretty slim.

No More ECA Funds For Plane Purchases

New policy in the Economic Cooperation Administration will be to turn thumbs down on future applications of foreign countries for Marshall plan funds with which to purchase transport aircraft in this country. This information seeped out today in connection with announcement that approximately \$67,090,000 has been allocated by ECA for purchases of aircraft, engines, parts and ground handling equipment as of November 23.

Recent criticism both in and out of Congress that this country, through Marshall plan funds, was financing equipment purchases of government-owned airlines abroad was said to have resulted in the new policy decision. Many of the foreign aircraft purchasers are direct competitors of U. S. international airline operators.

Latest figures reveal that \$27,794,000 has been allocated to the Netherlands. The money has been used in part to purchase two new Lockheed Constellations, six Douglas DC-6's and 12 Consolidated Vultee Convair-Liners. France has been allocated \$29,029,000 which is being used in part for the purchase of six new Constellations, two used Constellations and nine used Douglas DC-4's.

Applications totaling \$4,700,000 have been approved for Italy which originally sought to purchase DC-6's but which more recently has been given permission to buy Constellations instead. The switch, it was said, was approved because of earlier delivery schedules on the Constellations.

The Italian line receiving this equipment is owned 40% by the government, 40% by TWA and the balance by Italian citizens. Equipment purchases for Italy were finally approved, it was said, on the basis of potential traffic to Rome next year during the Holy Year observances.

Belgium-Luxembourg has been allocated \$2,917,000 for aircraft, parts and engine purchases involving six Convair

ATA Forecasts Record Airline Year for 1949

Never before had so many passengers and so much freight been flown by the nation's 16 domestic trunk airlines as were flown in the year 1949. Never had operating profits been so high.

Such were the conclusions reached by L. C. Sorrell, director of economic research for the Air Transport Association, using available figures through October and forecasting November and December traffic.

For the 16 domestic trunklines, he forecast a 1949 volume of 6,633,319,000 revenue passenger miles—up 13.9% over 1948—and 808,805,907,000 revenue ton miles of traffic—up 15%. Despite a decrease in mail and express revenues, the 16 carriers showed a healthy 12% increase in operating revenues and a net operating profit of \$25,820,326, as contrasted with one of only \$2,075,113 in 1948.

Sorrell's forecast of 1949 traffic and revenues of the U. S.-flag international airlines followed the same general trend as that of the domestic trunks, except with regard to mail revenues, which were higher, and the net operating income of the internationals was estimated at \$20,064,922.

Here are the Sorrell figures and forecasts, in tabular form:

DOMESTIC TRUNK AIRLINES

Traffic	1948	1949
Passenger miles (000)	5,822,540	6,633,319
Mail ton-miles	37,509,922	40,772,181
Express ton-miles	29,768,883	27,044,282
Freight ton-miles	70,437,811	94,867,116
Total revenue ton-miles	703,089,009	808,805,907

Operating Revenues and Expenses

Passenger revenues	\$334,735,597	\$378,743,932
Mail revenues	47,837,531*	45,899,020
Express revenues	9,964,039	8,513,596
Freight revenues	13,824,529	18,252,295
Total Operating Revenues	413,352,886	460,527,463
Total Operating Expenses	411,277,772	434,707,137
Net Operating Income	2,075,113	25,820,326

*Including retroactive mail pay applicable to 1948.

U. S. INTERNATIONAL AIRLINES

Traffic	1948	1949
Revenue passenger miles	1,888,997,000	2,144,012,000
U. S. Mail ton-miles—letter mail	16,441,884	18,972,171
U. S. Mail ton-miles—parcel post	660,193	1,247,818
Foreign mail ton-miles	3,554,941	5,299,990
Express ton-miles	41,147,863	50,967,949
Freight ton-miles	4,188,467	7,500,000
Excess baggage ton-miles	4,779,527	5,161,889
Total revenue ton-miles	265,171,841	309,789,817

Operating Revenues and Expenses

Passenger revenues	\$151,337,705	\$167,018,535
U. S. mail revenues including letter and parcel post	57,335,669	67,736,963
Foreign mail revenues	8,435,093	11,924,978
Express revenues	19,438,237	21,661,378
Freight revenues	1,370,442	2,325,000
Excess baggage	4,134,669	4,465,443

Total Operating Revenues	\$249,234,199	\$283,386,266
Operating Expenses	235,286,983	263,321,344
Net Operating Income	13,947,216	20,064,922

Liners. Denmark was given \$822,000 toward the purchase of two DC-6's and Norway \$872,000 toward two DC-6's.

Allocations of \$778,000 for Greece, \$149,000 for Ireland and \$30,000 for Iceland do not involve aircraft purchases, it was said. A considerable amount of the funds allocated to Greece is to be used in badly needed improvements at two of Greece's leading airports which are used by U. S. airlines.

Engines, spares and parts and ground handling equipment are included in these allocations.

Purdue Plans Flying Tour

The entire air transport senior enrollment of Purdue University, comprising 110 seniors plus faculty of 10, will fly to Washington and New York in two Capital Airlines chartered DC-4's on January 19 for a three-day inspection of airports and airline operations, according to Grove Webster, dean of the school of aeronautics.

The university is located at Lafayette, Ind., and operates a certificated single-engined feeder airline to Chicago.

ONLY

BENDIX-SCINTILLA

ELECTRICAL CONNECTORS

SHELL

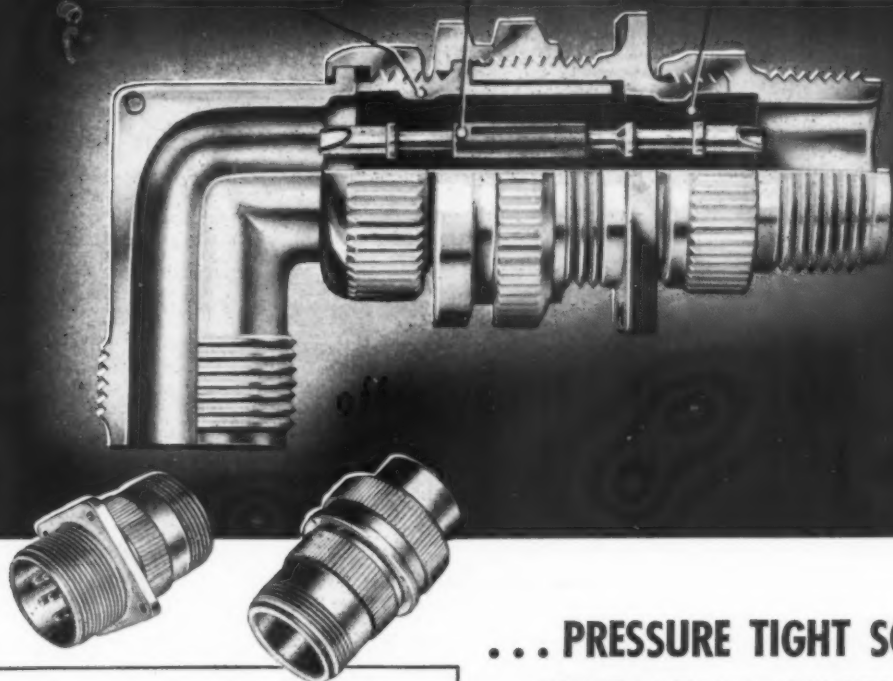
High strength aluminum alloy . . . High resistance to corrosion . . . with surface finish.

CONTACTS

High current capacity . . . Low voltage drop . . . No additional solder required.

SCINFLEX★ ONE-PIECE INSERT

High dielectric strength . . . High insulation resistance.



PLUS ALL THESE OTHER FEATURES

- Moisture-proof
- Radio Quiet
- Single-piece Inserts
- Vibration-proof
- Light Weight
- High Insulation Resistance
- Easy Assembly and Disassembly
- Fewer Parts than any other Connector
- No additional solder required

... PRESSURE TIGHT SOCKET CONTACT ARRANGEMENTS!

Outstanding design and fine workmanship, combined with materials that meet the requirements, assure the splendid performance of Bendix-Scintilla "pressurized" electrical connectors. These units include both pin and socket arrangements for *all* sizes of contacts.

★ **SCINFLEX** dielectric material is a new development that assures unequalled insert performance. It is available only in Bendix-Scintilla Electrical Connectors.

Write our Sales Department for detailed information.

**BENDIX
SCINTILLA**

Airlines Urged to Sponsor Jet Transport Development

The airlines should finance and develop jet transports themselves through ordinary or special mail payments, and the present airline network should undergo major revision, preferably through voluntary mergers, the aviation securities committee of the Investment Bankers Association said last month in its 1949 report.

The committee, headed by W. A. M. Burden, former Assistant Secretary of Commerce for Air, said that airlines should set specifications and place orders direct with the manufacturers. "This is the process by which the United States developed the best transports in the world over the last 20 years. Although the 'Big Four' gained approximately \$55 millions in cash in 1949, they do not yet have the financial resources to embark on a major prototype development program . . . Financial assistance . . . could probably best be provided in the form of additional mail payments from CAB."

If this method is proved impractical, government-sponsored prototype development will be necessary, and legislation should be passed at the next session of Congress, it said, adding that two principal jets are needed: a domestic model with 100,000 lbs. gross weight, costing \$20 million to develop, and a 200,000-lb. international model costing \$30 million to develop.

New Capital for Jets

The committee pointed out, however, that even before getting into a jet program, the domestic and international airlines will, at "rough guess," need \$255 million of additional or refinanced capital during the next three years. Division of this money "might be as follows": 80 four-engined planes costing \$80 million, 125 twin-engined planes costing \$50 million, with the remaining \$125 million to be used for refinancing and additional working capital.

Mail pay must be maintained at present levels if adequate financing of the airlines is to be made possible, and development of new planes assured, and "fortunately there are indications that this will be done," the report said.

On mergers, it stated that it might appear necessary to give CAB power to force mergers or revoke certificates. "However, the granting of such powers . . . would undermine the stability of the industry and threaten its credit position to such a serious degree that your committee does not recommend it."

Later in the report, however, it said that if a program of voluntary mergers cannot be accomplished—"and the failure of the ICC to achieve a similar reorganization of the railroads in the

past 30 years indicates that it probably cannot—the Congress should give the . . . Board power to require the necessary reorganizations."

The committee also asserted:

1. The present capital structures of many airlines appear unsatisfactory, with proportion of bank loans and long-term funded debt far too high in some cases. The industry needs substantial amounts of equity capital. CAB should not have power to regulate issuance of airline securities.

2. If it turns out that the four certificated all-freight carriers (Slick, Tigers, U. S. Airlines and Airnews) cannot operate without

Reported Earnings of 'Big Four' Airlines

(First 9 months of each year)

	1948	Earnings 1949	Change	1948	Mail Pay 1949	Change
American	—\$3,769,824	\$7,085,594	\$10,855,418	\$3,092,787	\$3,894,774	\$801,987
Eastern	3,616,040	4,216,544	600,504	1,377,188	2,346,717	969,529
TWA	—2,795,874	681,182	3,477,056	3,837,786	4,262,581	424,795
United	—3,469,125	3,872,485	7,341,610	3,808,366	4,709,253	900,887
TOTAL	—\$6,418,783	15,855,805	22,274,588	12,116,127	15,213,325	3,097,198

subsidy, the CAB "should re-examine the situation with a critical eye before approving a permanent fragmentation of air freight traffic under such conditions." Attracting a really large volume of freight to the air remains "an intriguing but distant possibility."

3. Air coach experiments are desirable, but there should be no large-scale institution of such service unless it is clear that it will increase net revenue.

4. Separation of mail pay and subsidy appears inadvisable, at least until after most careful study.

5. One of CAB's greatest challenges is to develop means of encouraging cost consciousness among the airlines.

Equity Capital Needed

Asserting that equity capital is needed, the report said that equipment trust financing, creation of corporations to lease flight equipment, or RFC loans for plane purchases or working capital, "will not solve the airlines' basic problem of inadequate earnings . . . However, when the industry's basic credit problem is solved, equipment trust financing or aircraft leasing corporations may prove useful financing tools."

On CAB encouragement of cost consciousness: "A true profit and loss approach might be substituted for the present idea of providing subsistence for each airline if proper yardsticks of air carrier operating costs and efficiency were established. If this were done, mail pay might be allocated throughout

the industry on a basis which would be most productive of efficiency, economy and progress by equalizing not the rate of return (net profit) but the opportunities for profits and losses.

"Under such a system, the most efficient carriers . . . might make really large profits while some carriers might merely break even or show losses . . . The incentives would be present for good management. The threat of insolvency would face the least efficient. Such a positive attitude would dispel the present feeling many investors have that the industry is headed for some form of profit limitation which would eliminate any real opportunities for individual companies to achieve long-term growth."

'Big Four' Income

The Big Four in 1949 will show net operating income of \$25 million against \$2,786,000 in 1948, the report estimated.

Operations should result in a cash gain (net income before income taxes plus depreciation charges) of \$55 million against \$33,966,000 in 1948. Smaller lines will also show substantial improvement.

Passenger-miles (estimated at 6.6 billion) flown by domestics will be at least 15% over 1948, while international (2.1 billion) will be up 16%. Total domestic mail pay in fiscal 1949 was about \$60 million, up \$25 million (71.4%) over the \$35 million paid in 1948, and the 1950 level will be about the same as 1949.

It was emphasized, however, that increased mail pay was "responsible only to a moderate degree for the improved earnings (net income before income taxes)." (See accompanying table).

Foresees Steady Growth

Calling the airlines' medium-term outlook "reasonably promising," the report said that with improved safety and regularity, introduction of coach service and, within five to seven years, faster turbo-jet or turbo-prop transports, "it seems probable that air passenger traffic will show continued and relatively steady (say 5 to 10% per annum) growth over the next five years provided the total volume of long-haul travel is not reduced by an economic depression. The volume of air travel is already so large in comparison to long-haul surface travel that a continuance of the 20-30% annual increases experienced in prewar days is not to be expected."

American Airlines, Inc. announces

AMERICA'S FINEST LOW COST AIR TRAVEL

NEW YORK TO LOS ANGELES \$110*
CHICAGO TO LOS ANGELES \$85*
CHICAGO TO NEW YORK \$35*

*PLUS TAX



BETWEEN

NEW YORK and LOS ANGELES via Chicago

Now you can enjoy low cost air travel...

with complete confidence. For you will travel with the airline that's had 20 years of experience in coast to coast operation and with the fully experienced flight crews of the famous Flagship Fleet.

in 4-engine aircraft. Your plane—a proven 4-engine Douglas Aircraft of world-wide reputation—with the same precision maintenance as Flagships used on premium flights.

with daily scheduled departures and arrivals. American's regularly scheduled daily departures assure you the same dependability for which the Flagship Fleet is famous.

New Low Fares

These new low fares are made possible by a high density but comfortable seating arrangement, and by the elimination of some extra services usual on the regular fare transcontinental flights.

Meals of your choice may be purchased at the intermediate stop.

AMERICA'S LEADING AIRLINE **AMERICAN AIRLINES INC.**

JANUARY 1, 1950

Wiggins Operates Airline Over Long-Familiar Territory

By WILLIAM D. PERREAULT

Probably no airline has ever been more familiar with the territory over which it initiated certificated service than was E. W. Wiggins Airways, New England's community airline. Wiggins, which started the first segment of its service on September 19, has been a major factor in New England's aviation activities for many years.

As one of the largest fixed base operators in New England, E. W. Wiggins Airways maintains operations offices in Providence, R. I., Westfield, Plymouth, Boston, Canton and Norwood, Mass. While airline operation is new to Wiggins, there's little else in the aviation field in which it has not taken part.

At each of its bases, except Boston, Wiggins operates pilot training schools. At several bases it does maintenance work and at Canton operates aircraft and engine maintenance and overhaul facilities, an approved aircraft and engine mechanics school, limited manufacturing activities, a major distributorship for parts and equipment and the sales agency for Piper Aircraft. Here also Wiggins bases its single Bell helicopter.

Varied Activities

At Canton Wiggins also handles extensive research work in conjunction with the Aeronautical Research Corp., testing light planes with new propeller designs and various muffler types to bring about a quieter airplane. It was at Wiggins' Canton hangars that the now famous Heliplane was constructed under the design and engineering direction of Dr. Otto C. Koppen and Dr. Lynn Bollinger.

At Boston, Wiggins' crews handle turn-around work for Trans World Airlines' Constellations at a spectacularly low price and makes a profit on it. Using a six-man crew, this group handles loading of passenger luggage and cargo, helps passengers through customs, handles mail, takes care of linens, blankets and sweeping of passenger compartments. They also handle fuel, oil, hydraulic and anti-icing fluid servicing. Gas and oil are handled on a service charge basis, other fluids are sold to the airline.

Operates Airports

Wiggins provides similar services for Air France ships flying into Boston International Airport as well as many non-scheduled airlines. It rents offices in its Boston hangar to American, Eastern and to the CAA.

At Westfield, where Wiggins has two pilot instructors, two mechanics and two clerks, Wiggins manages the airport for the city. A National Guard unit oper-

ates out of Westfield and American is scheduled to use the airport in the future. In addition to two hangars, this airport has a fair-sized terminal, a three-story building with Weather Bureau facilities, tower and airline space. Wiggins rental costs at Westfield are pro-rated to reflect its service to the city.

Dusting and Spraying

Wiggins has applied for helicopter routes in New England. While such matters are pending, Wiggins is gaining experience in helicopter operation and adding revenue to its yearly gross. With its single Bell helicopter Wiggins works in the cranberry bogs of Massachusetts in June and July, during August moves north into Maine for the potato crops and in September covers the several states in that area with major apple orchards.

By spreading its operations over many fields, Wiggins has been able to maintain profitable operations while other fixed base operators, committed to dependence on flight training alone, have ceased operations. At one time immediately after the war, Wiggins gross volume of business reached \$1,800,000 for one year. Actually this represented an over extension of efforts and the operation has since been considerably consolidated with reduction in volume and increase in profits.

A look at Wiggins 1948 revenues shows that 20% of the gross volume was from

shops and services rendered, 25% from parts sales, 25% from flight, 6% from charters and training and the balance from airport services, airplane sales and manufacturing. The spread in revenue-producing activities stabilizes the overall operation.

Early Record

With this rich background of aviation activity in New England, E. W. Wiggins Airways opened the first segment of certificated route mileage on September 19. The segment links Boston, Worcester, Springfield, Pittsfield and Albany. As was expected, passenger load factors have been relatively low but they are on the increase at an encouraging rate. Mail loads have been unexpectedly high.

Through October 15, Wiggins had completed 12,586 miles (71%) of a 17,584 scheduled miles. On-time operation has been satisfactory even though scheduled ground time has been kept at four minutes.

On November 16 the second segment of the Wiggins routes was serviced for the first time. This segment links Boston, Norwood, Providence, Willamantic, Brainerd Field, and Windsor Locks. To service these routes Wiggins is operating three twin-engined Cessna T-50's. These five-passenger ships were overhauled and the interiors redecorated in Wiggins' own shops as will be the next two ships which will eventually supplement the present fleet.

The interior of the Cessna's is relatively roomy and one passenger can sit in the co-pilot's seat. All of the passengers can easily see the instrument panel. Passenger acceptance has proved very satisfying. Even on the long haul to Albany, Wiggins is selling a considerable number of through tickets. The passengers seem to enjoy the moder-



WIGGINS AIRWAYS uses three twin-engined Cessna T-50's on its feeder operation through New England. Five passengers are carried, one riding in the co-pilot's seat. Here, Chief Pilot Ralph Hynes watches as Marjorie Wilbor, Wiggins reservationist, and Fred Valentine, chief of maintenance, deplane.



Joseph Garside
President

Harold E. Shaw
Executive V. P.

Frederic S. Tobey
Secretary

ately-spaced flight over this scenic route. The company is presently executing interline agreements with other lines.

Organization

President of E. W. Wiggins Airways is Joe Garside, a man of long time prominence in the lightplane field and active in many related organizations. Garside was active in the organization during the time when the late E. W. Wiggins, Sr., founded and directed its activities. Executive vice president and treasurer is Harold E. Shaw, aviation enthusiast of many years standing and a flyer during World War I. Fred S. Tobey handles the duties of secretary, corporation clerk and sales manager.

Chief pilot for Wiggins operation is Ralph Hynes and maintenance activities are headed by Fred Valentine. Because it has been operating the Cessna T-50's for some time in charter work, very little new training effort was required other than route checking and in items other than the aircraft. Pilots are chiefly men who have been associated with Wiggins for some time in flight training operations.

Operations Arrangements

To keep operations costs at a minimum, Wiggins Airways has put its fixed base operations at Boston, Westfield-Springfield, and Norwood to work handling station requirements. At Albany, New York and Providence, R. I., American Airlines handles the work. In Worcester the Universal Aviation Corp., a fixed base operator, takes care of ticket sales, operations, ramp and air mail. Greylock Airways, another fixed base operator, handles these services in Pittsfield.

The Flying Tiger Line handles the airline's work at Brainerd Field in Hartford, Conn., while Northeast Airlines takes care of work at Bradley Field there. Another fixed base operator, Windham Airways, rounds out the Wiggins organization needs at Willimantic, Conn.

Before the first of the year Wiggins expects to operate the remaining two

segments. One of these will connect Boston and Albany via Lawrence, Mass.; Manchester, N. H. (providing facilities are available); and Keene, N. H. The other route will connect Boston and Albany via Fitchburg, Mass., Orange and Turner Falls, Mass.

This is a difficult time of year to operate a VFR scheduled airline in New England and New York where weather is often unfavorable but the terms of Wiggins' CAB certificate made action at this time necessary. People in New England who have watched Wiggins operations in the fixed base field are convinced that, if anyone can make a go of feeder line operation there, Wiggins certainly can.

CAB Calendar

Jan. 4—(Docket 3397 et al.) Hearing in Transcontinental Coach Type Service Case. 10 a. m., Conference Room "B," Departmental Auditorium, Washington. Examiner William J. Madden.

Jan. 5—(Docket 3695) Hearing on application of Florida Airways for final mail pay settlement. Tentative. Examiner R. Vernon Radcliffe. Postponed from December 19.

Jan. 9—(Docket 1705 et al.) Hearing on CAB Investigation of Accumulation, Assembly, and Distribution Tariff Rules. Tentative. Examiner Herbert K. Bryan.

Jan. 16—(Docket 2832) Hearing on application of Nationwide Airlines, Inc., for certificate to operate between points in Michigan. Tentative. Examiner R. Vernon Radcliffe.

Jan. 16—(Docket 946 et al.) Hearing in New York City Area Helicopter Service Case. Tentative. Examiner Ferdinand D. Moran. Postponed from January 9.

Jan. 17—(Docket 3500 et al.) Hearing in National Airlines Dismemberment Case. Tentative.

Jan. 23—(Docket 3717 et al.) Hearing on applications of five Cuban companies for Cuba-Florida foreign air carrier permits. Tentative. Examiner Paul N. Pfeiffer. Postponed from January 9.

Feb. 6—(Docket 2724) Hearing in Colonial Airlines, Inc., Final Mail Rate Case. Tentative. Examiner R. Vernon Radcliffe.

Feb. 13—(Docket 3966) Hearing in West Coast Airlines Certificate Renewal Case. Tentative. Examiner Ferdinand D. Moran.

Feb. 24—(Docket 4100) Hearing in Meteor Air Transport, Inc. Enforcement Proceedings. Tentative. Examiner Curtis C. Henderson. Postponed from January 24.

Aviation Calendar

Jan. 9-13—SAE annual meeting and engineering display, Hotel Book-Cadillac, Detroit, Michigan.

Jan. 10-27—Fourth annual Air Transportation Institute, conducted by American University, Washington, D. C.

Jan. 11-12—Florida Flying Alligator Club's "Rituals & Frolics," Melbourne, Fla.

Jan. 13-15—18th Annual All American Air Maneuvers, Miami, Florida.

Jan. 16-18—Miami-Havana air cruise for private planes, conducted by Florida Air Pilots' Assn.

Jan. 23—Institute of the Aeronautical Sciences annual Honors Night dinner, Hotel Astor, New York, N. Y.

Jan. 23-26—Institute of the Aeronautical Sciences 18th annual meeting, technical sessions, Hotel Astor, New York, N. Y.

Jan. 30-Feb. 5—American Petroleum Institute aviation technical service committee meeting, Los Angeles, California.

Feb. 1-2—National Transportation Conference, sponsored by Chamber of Commerce of the United States, Chamber Building, Washington, D. C.

Feb. 18-26—1950 New York Airplane Show in conjunction with National Sportsmen's and Vacation Show, Grand Central Palace, New York, N. Y.

March 6-9—American Road Builders' Ass'n annual meeting (including Airport Div.) Netherlands Plaza Hotel, Cincinnati, Ohio.

March 24—Institute of the Aeronautical Sciences, Fifth Annual Flight Propulsion Meeting, Carter Hotel, Cleveland, Ohio.

April 4-6—ATA annual engineering and maintenance conference, Hotel Continental, Kansas City, Missouri.

April 10-14—American Society of Tool Engineers exposition, Convention Hall, Philadelphia, Pennsylvania.

April 16-20—American Association of Airport Executives annual meeting, Neil House Hotel, Columbus, Ohio.

April 17-19—SAE aeronautic meeting and aircraft engineering display, Hotel Statler, New York City.

April 24-26—Airport Operators Council third annual meeting, Hotel Carter, Cleveland, Ohio.

June 4-9—SAE summer meeting, French Lick Springs Hotel, French Lick, Indiana.

June 10-13—National Aeronautic Association 28th annual convention, Hotel Statler, St. Louis, Missouri.

International

Jan. 5—ICAO Legal Committee meeting, Taormina, Italy.

Jan. 24—ICAO Council, ninth session, Montreal.

Feb. 14—ICAO Meteorological Division meeting, Paris.

March—ICAO African-Indian Ocean Fixed Services meeting location undecided.

April—ICAO Caribbean regional meeting, location undecided.

June—ICAO Fourth Assembly, Montreal.

June—ICAO Legal Committee meeting, Montreal.

October—ICAO Rules of the Air/Air Traffic Control Division meeting, location undecided.

November—ICAO Middle East regional meeting, tentative, location undecided.

November—ICAO Airworthiness/Operations meeting, location undecided.

Between the Lines:

Now It's Been Said

By James J. Haggerty, Jr.



THE Air Force's Bell X-1, supersonic research airplane, reached a maximum speed of Mach 1.46, or roughly 963 miles per hour, at an altitude of 53,000 feet, during the first phase of its flight program.

There, we've said it and we're glad.

We have been in possession of the above information for more than a year, but have carefully kept it out of print in the honest belief that it was information which should be kept out of the files of a foreign power. However, some members of the defense establishment apparently felt that it was not really too important.

The Air Force first officially confirmed that the X-1 had exceeded the speed of sound on June 10, 1948, after the fact had become common knowledge in the aviation industry.

At that time, Secretary of the Air Force W. Stuart Symington declined to comment on the exact speeds attained, stating only that it was "an interesting figure." But the Air Force had bracketed the speed in official press releases.

On Dec. 15, 1946, in officially announcing the existence of the X-1, the Air Force stated that, while the plane had been designed for a top speed of 1,700 miles per hour, it would be limited to 1,000 miles per hour because development troubles had necessitated the substitution of an alternate power plant. Since the speed of sound is 660 miles per hour at altitudes above 40,000 feet

(higher as altitude decreases), the announcement that the plane had exceeded the speed of sound bracketed the exact speed attained as between 660 and 1,000 miles per hour.

Narrowing It Down

Although this in itself might have been of interest to our Russian friends, Symington later bracketed it a little closer when he stated that the X-1 had flown "hundreds of miles faster than the speed of sound." Since he used the plural in "hundreds," that placed the exact speed somewhere between 860 and 1,000 miles per hour.

Last week Capt. Charles "Chuck" Yeager, the first supersonic man and the test pilot who handled most of the X-1 program, went the Secretary one better and said that the X-1 had flown "more than 200 miles (per hour) faster than the speed of sound." While Yeager was just echoing the Secretary as far as the minimum limit was concerned, he eliminated the possibility that the plane might have gone faster than 1,000 miles per hour in spite of its power deficiency.

We have as much respect for military security as anyone in the Pentagon and our files are full of items which are better left unprinted. But we get a little bit tired of Pentagon brass "declassifying" classified information in order to get a headline out of an after-dinner speech. We felt that it was only

a matter of time before some one said the X-1 had flown between 300 and 305 miles per hour faster than sound.

Actually, by splitting the brackets the Air Force had, in official statements, placed around the exact speed of the X-1, an enemy agent would have come up with a figure of 930 miles per hour, certainly close enough for planning purposes. And if he had chosen to interpret Yeager's remark as being based on the sea level speed of sound (763 mph) instead of the high altitude speed of sound, he would have hit the exact speed right on the nose.

Greater Speed Unlikely

We said at the start that the speed of Mach 1.46 (963 mph) had been attained in the first phase of the X-1 program. After completing this phase, experiments with the X-1 were discontinued for several months and then resumed. It is quite possible that, in this later phase, the X-1 flew still faster, but we're inclined to doubt it, particularly in view of Yeager's "200 miles per hour faster" figure.

It might be a good idea to digress a moment and explain the term Mach number for the benefit of those who still have not caught up with it. The speed of sound, as stated before, is not constant. It decreases on a gradual curve from 763 miles per hour at sea level to 660 miles per hour at 40,000 feet and above. The Mach number was devised to indicate velocity in proportion to the speed of sound.

Thus Mach 1 represents the speed of sound, whether it be 763 miles per hour or 660 miles per hour. Mach .8 would be 80% the speed of sound, Mach 1.46 would be 145%. All late model high speed aircraft are equipped with instruments known as machmeters, which automatically compensate for altitude and give a reading in the percentage of the speed of sound at which the airplane



Postwar Boats—These two photos illustrate the post-war trend in flying boat design, left, the Martin P5M-1, now going into production, and right, the Convair XP5Y-1 in San Diego Bay, where its Allison T-40 engines are being installed preparatory to first flight. Note the long "afterbody" hulls, high length-beam ratio and generally streamlined design, as compared to the bulky, pre-war boat types. (Editor's note: The Navy, with

a sublime indifference to realism, refused to release the XP5Y-1 photo for publication, on the grounds that it would violate "security," despite the fact that any one in San Diego who wants to take the trouble can take a good look at the plane. Therefore, we were forced to reprint this picture from CONVAIRIETY, Consolidated Vultee's company publication, only distributed to Convair's 15,000 employees, stockholders, newspapers and magazines.

is flying. The Mach number got its name from Ernst Mach, a German scientist who devised the system.

X-1 Practically Obsolete

The Bell X-1 is now practically obsolete as far as supersonic research is concerned. It provided engineers with flight data in what might be termed the "immediate" supersonic area. Data is also needed on flight characteristics in the high subsonic and the high supersonic areas.

The Air Force, Navy and the National Advisory Committee for Aeronautics have combined in an effort to accumulate that data with a special research program consisting of seven experimental aircraft. For work in the high subsonic zone, the Air Force sponsored the development of the Northrop X-4, a small, flying wing type of plane, which has been flying at Edwards (Muroc) Air Force Base in California's Mojave desert for about a year. In the same field, the Navy sponsored the Douglas D-558-1 Skystrake.

For supersonic work, the Air Force has the Bell X-2 and X-5, and the Douglas X-3, while the Navy has the Douglas D-558-2 Skyrocket. The X-2, a swept-back wing version of the X-1, was to have been test flown several months ago, but has been held up by developmental difficulties with its power plant, a new rocket engine being built by Curtiss-Wright Corp.'s Propeller Division. The X-3 and the X-5 are still in construction.

Muroc Renamed

Muroc Air Force Base, the California desert air test center which the Air Force and Navy use for experimental flight work, has been re-named Edwards Air Force Base. In line with the Air Force policy of naming its bases for personnel who lost their lives in service, the base was named for Capt. Glenn W. Edwards, who was killed in the crash of an experimental Northrop YB-49 jet Flying Wing bomber on June 5, 1948.

Rocket Society Awards

The Goddard Memorial Lecture Award, a gold medal, was awarded to Rear Admiral Calvin Mathews Bolster, USN, during the annual meeting of the American Rocket Society in joint session with the American Society of Mechanical Engineers.

Bolster received the award for "exceptional vision and leadership in support of research and development throughout the field of rocket propulsion."

The C. N. Hickman Award for "work in initiating the development of the Aerbee rocket and for his contribution toward upper atmosphere research with rockets" was presented to Dr. James A. Van Allen of the Applied Physics Laboratory of the Johns Hopkins University.

Production Spotlight

Manufacturing Report: The past year was a good one for aviation, the Aircraft Industries Association concludes in its year-end round-up. The manufacturing industry improved its financial position and military production topped the previous year.

AIA estimates total sales volume of the airframe, engine and propeller industries at \$1,700,000,000 during the calendar year 1949. No profit figure is available due to the necessity of renegotiating certain military contracts, but AIA feels that profits, too, will better those of 1948.

The airframe industry turned out a total of 34,500,000 airframe pounds in 1949, AIA estimates. This compares to 35,232,400 pounds in 1948. Military airframe production increased from 25,149,000 pounds in 1948 to an estimated 28,000,000 pounds in 1949, but civil aviation production fell off from 10,082,500 pounds to 6,500,000 pounds.

Military unit production in 1949 will probably exceed the 2,200-2,400 planes built in 1948 by 200-300, AIA says. Production of airline transport aircraft in 1949 will be less than 120 units, with an additional 45 smaller twin-engine executive planes. This compares to about 260 commercial and executive-type units turned out in 1948. Personal aircraft production fell off sharply, from 1948's 7,039 units to about 3,400 units in 1949.

AIA sees another good year ahead. Although a drop in civil aircraft deliveries of about 1,000,000 pounds is predicted, AIA estimates that military production will be increased by about 3,000,000 pounds.

55,200-Pound Thrust: A jet engine with a thrust rating more than one-third greater than any now in service will power Air Force's six-jet bomber, the Boeing B-47. The engine is the Allison J-35-23, which has a static thrust guarantee of 9,200 lbs. It will power B-47's beginning with the "C" models.

The Allison engine was chosen over an advanced, more powerful model of the General Electric J-47 engine now in service after a long evaluation by technical experts of the Air Force's Air Materiel Command. The J-47 will power the early "A" and "B" models of the B-47.

Speculation as to what the new engines will do for the B-47's performance might be drawn from the fact that a prototype model of the sleek, swept-back bomber has already flown at more than 600 mph with engines less than half as powerful. The production version will be considerably heavier than the prototype, but there should still be a tremendous performance increase.

Penetration Fighter: The first of two prototype models of North American Aviation's XF-93, jet penetration fighter, has been trucked to Edwards Air Force Base, Calif., for ground and taxi tests preparatory to first flight, which will take place around the first of the year.

The XF-93 is a new version of the F-86 Sabre design, with a 38-foot wing span (one foot longer than the F-86) and a length of 44 feet (seven feet longer). The new plane will be considerably heavier than the F-86 (airframe weight is 9,500 pounds compared to the F-86's 6,800 pounds). Power plant in the prototype will be a Pratt & Whitney J-42 Nene engine, but the plane has been designed to take the more powerful P&W J-48, a parallel development of Britain's Rolls-Royce Tay, with a thrust rating of about 8,000 pounds with afterburning. The XF-93 has its air intakes in the sides of the fuselage instead of the nose intake in the F-86, and the XF-93 nose has been shaped to a point.

The arrival of the XF-93 at Edwards gives North American two new planes at that base, both preparing for first flight. The other is the YF-86D, a considerably modified all-weather version of the F-86 design.

Industry Briefs: The Glenn L. Martin Co. has announced receipt of an initial production order for its P5M-1 twin-engine Navy flying boat. Size of the contract was not announced, but it is believed to be for five planes. . . . Wright Aeronautical Corp. has received military engine contracts totaling \$12,500,000 for three types of engines. The major order (over \$10,000,000) is a Navy contract for R-3350 Cyclone 18 2,700 horsepower engines and R-3350 Turbo-Cyclone 18 compound engines. The other is an Air Force order for 1425-horsepower R-1820 Cyclone 9 engines for use in the Grumman SA-16A Albatross.

—J. J. H.

ADMINISTRATION

J. Malcolm Smith has been named assistant to W. A. Patterson, president of United Air Lines, with headquarters in Washington. He will succeed T. W. S. Davis, who left that post to become Assistant Secretary of Commerce. Smith joined UAL in 1946 and has been staff assistant to R. F. Ahrens, vice president-personnel, since early 1947.

OPERATION-MAINTENANCE

H. J. Langford, station manager for National Airlines at Valdosta, Ga., since last May, has been transferred to Orlando in the same capacity. **Russell E. Pence**, former chief agent at Tampa, takes over the Valdosta post. **W. E. Golden**, station manager for NAL at Richmond since September, 1948, has gone to West Palm Beach as station manager.

John Steele has resigned his position as technical assistant to David Ingalls, director of Pan American Airways, in the New York office. A 21-year veteran with the company, Steele for 14 years served as assistant to Andre Prister, vice president and chief engineer, before becoming Ingalls' assistant.

TRAFFIC & SALES

W. F. McGrath has resigned as Trans World Airline's Atlantic region general sales manager to become executive vice president of the American Society of Travel Agents. He has been in the transportation and travel fields since 1911 and joined TWA in 1940 as eastern regional manager.

S. E. Collins, Jr., a 17-year veteran with American Airlines, has been named district manager of agency, international and interline sales at Los Angeles, replacing **E. L. De Rosa**, resigned.

F. H. Sheldon has been named vice president-traffic for Caribbean Atlantic Airlines. He formerly was with Pan American Airways and Panagra for ten years. **W. W. Quirk**, formerly with Trans World Airline, has been appointed traffic and sales manager for Caribbean in St. Thomas and St. Croix.

Porter Stiles, district sales manager for National Airlines at Tampa for the past three years, has been named district sales manager at Philadelphia.

Henry M. Crook has been appointed district traffic manager for Pan American Airways at Ciudad Trujillo, succeeding **Charles Maher**, who has been transferred to Cristobal, Canal Zone, in the same capacity. Crook has been a PAA representative at New Orleans since 1944. Maher, who has been with the company since 1941, succeeds **E. V. S. Arbouin**, who has resigned.



UAL Executive—**Otis E. Kline** has been named executive assistant to W. A. Patterson, president of United Air Lines, in which capacity he will act as liaison between the president's office and all departments of the company. He learned to fly and became a flight mechanic in 1928 and joined Stout Air Lines, UAL's predecessor company, in 1929. His background also includes 2,250,000 miles of flying as a United captain and a period of business experience as director of The Wayne Pump Company of Fort Wayne, Ind.

Ross Angier, sales manager for American Airlines in Syracuse since 1944, has been named district sales manager at Buffalo, replacing **W. S. Weismann, Jr.**, now assistant to the vice president of AA in Washington. **George Wright**, sales manager in Richmond for the past two years, has been assigned to the Syracuse post, and **John Snyder**, former European manager of reservations and ticket offices, is the new sales manager in Richmond.

Edna Manassa, chief supervisor of National Airlines' Miami reservations sales department the past two years, has been appointed superintendent of air information in the sales department, with headquarters in Miami.

Patricia O'Malley Strickland, has rejoined the public relations staff of Trans World Airline in Washington after a three-year period spent in writing aviation books for teen-agers.

MANUFACTURING

Bruce A. Weldon, formerly budget manager of Aviation Maintenance Corp. and later chief cost accountant at Douglas Aircraft, has joined Piper Aircraft Corp. as assistant to the general manager.

Everett B. Schaefer has been appointed as chief technical engineer for Canadair Limited and will be in charge of its preliminary design section and the stress, aerodynamic and weight departments. A 20-year veteran in aviation engineering, he has recently been with Boeing Airplane Co. **William B. O'Neal**, formerly senior design engineer for The Glenn L. Martin Company, has joined Canadair as chief of design sections.

Others in the News

Brackley Shaw has resigned as general counsel of the Department of the Air Force to take up the private practice of law in Washington. He was with a New York City law firm prior to entering the service in 1941.

Carl A. Froberg, formerly on the sales staff of the Waldorf Astoria Hotel, has been appointed managing director of The Wings Club in New York.

Robert Ramspeck, executive vice president of the Air Transport Association and former chairman of the House Civil Service Committee, has been named by Secretary of State Dean Acheson as a member of a three-man committee to determine whether the State Department's foreign and departmental services can be merged.

Edward V. Trapani has been promoted by Lockheed Aircraft Corporation from assistant to project engineer on the Constellation, and **M. C. Haddon**, formerly project engineer, has been assigned to new executive duties in Lockheed's engineering department.

M. F. Clement, formerly with the Reconstruction Finance Corporation, has been named treasurer of Air Cargo, Inc., to replace **Robert Guest**, who has resigned effective January 1.

Capt. John Jay Ide, USNR, has been reappointed as the National Advisory Committee for Aeronautics technical representative in Europe. He has been assistant naval air attache at the American Embassy in London since 1945.

Rear Adm. Paul A. Smith has been appointed by President Truman to be U. S. Representative to the Council of the International Civil Aviation Organization. He had been acting representative for more than a year.

David Shawe has resigned his position as vice president and assistant to the publisher of American Aviation Publications, effective January 1, to devote his full time to other interests outside the industry. Joining American Aviation as west coast representative in 1939, Shawe later came east as managing editor of one of the firm's publications. He had been an officer of the company since 1947.

Kindelberger Named Head Of AIA Board of Governors

Aircraft Industries Association has announced the results of elections held at its annual meeting in Santa Barbara recently. Five new members were elected to the board of governors: C. C. Pearson, president, The Glenn L. Martin Co., replacing Harry T. Rowland; Roy T. Hurley, president, Curtiss-Wright Corp., replacing Robert L. Earle; Richard S. Boutelle, president, Fairchild Engine and Airplane Corp., replacing J. Carlton Ward, Jr.; W. H. Beech, president, Beech Aircraft Corp., replacing C. J. Reese; and D. W. R. Morgan, vice president, Westinghouse Electric Corp., Aviation Gas Turbine Division.

J. H. Kindelberger, chairman of North American Aviation, Inc., was elected AIA board chairman, succeeding Eugene E. Wilson. La Motte T. Cohu, president of Consolidated Vultee Aircraft Corp., and J. S. McDonnell, president of McDonnell Aircraft Corp., were elected vice presidents, succeeding Kindelberger and Malcolm Ferguson, president of Bendix Aviation Corp.

Adm. D. C. Ramsey was re-elected president, and Leland D. Webb and Harrison Brand, Jr., were re-elected vice president and secretary-treasurer respectively.

TWA Hostesses & Pursers Get Raises Under New Scale

The Air Line Stewards and Stewardesses Association (AFL) has signed a new employment agreement giving pay raises to approximately 550 flight hostesses and pursers of Transcontinental and Western Air, Inc. The new wage scale for hostesses flying in the company's domestic routes ranges from \$185 starting pay to \$265 after seven years of service.

International hostesses have a new scale of \$200 to \$295 over a seven year period, and flight pursers earnings go from \$255 monthly to \$355 in four years.

Air Transport Institute Schedules 40 Speakers

The fourth annual Air Transportation Institute to be conducted by The American University with the cooperation of the Civil Aeronautics Administration and the Air Transport Association will be held in Washington from January 10 through January 27, 1950.

Among the 40 speakers who will address the Institute in a series of discussions on air transport problems will be: D. W. Rentzel, Civil Aeronautics Administrator; Russell B. Adams, member of the Civil Aeronautics Board; J. H. Carmichael, president of Capital Airlines; C. W. Jacob, vice president, American Airlines; and M. F. Redfern, vice president, Air Transport Association.

Airline Commentary

By ERIC BRAMLEY

STAN OSBORNE, vice president of Eastern Air Lines, went to the recent meeting of the International Air Transport Association traffic conferences in Mexico City. Day after day he listened to learned discussions on family fares, student rates, group fares, etc., and it slowly dawned upon him that there had been no mention of that rarity, the full-fare passenger. So Stan sat down and drafted a mock resolution, which we have finally succeeded in prying out of him. The pay-off was that he showed the resolution to Sir William Hildred, IATA's director general, who is known for his sense of humor. Not one to miss a trick, Sir William slipped it in with the serious resolutions and it turned up in printed form, causing Stan no end of anguish for fear that he was disrupting an international conference. But everyone enjoyed the touch of humor, and the resolution was even read at the recent Air Traffic Conference meeting in Chicago. Here it is:

"Whereas, it now becomes evident that air transport companies have reached the point where the full-fare passenger must be defined, and whereas it is advisable to leave to posterity a description of this fast-disappearing phenomenon, be it resolved that a full-fare passenger shall be a man or woman who:

- "a. Has no friends or acquaintances, and cannot join in group fares.
- "b. Has no family, legitimate or illegitimate, and cannot join in family fares.
- "c. Cannot read or write and thus avail himself of student fares.
- "d. Doesn't own a calendar so as to avail himself of off-season fares.
- "e. Has no religion so as to avail himself of special event fares.
- "f. Doesn't own a clock or other time-piece so as to know if he is entitled to 'off-hour' or 'overnight tourist' fares.
- "g. Never learned the days of the week so that he may know when to travel on 'family fare' plans or mid-week excursion fares.
- "h. Doesn't belong to a military service and thus benefit by military discount fares.
- "i. Is not a child, or a student under 65.
- "j. Doesn't own a compass so as to know whether he is going 'east-about' or 'west-about' or in what direction he is going.
- "k. Has not learned to live without food or drink or to survive cold temperatures without blankets and thus travel by tourist coach.
- "l. Is unhappy at home, so he does not want to return home and therefore avail himself of circle or return-trip discounts.
- "m. Works so little that he never goes on an excursion-vacation at excursion rates.
- "n. Believes an 'open jaw' refers to excess talk and therefore cannot avail himself of open-jaw discounts.
- "o. Doesn't work for an oil company in Basra, is not a travel agent, a tour conductor or a general agent.
- "p. Never heard of the moral of 'early to bed and early to rise' and likes to lie abed 'beyond 0830 local standard time' and thus can't use early-morning fares.
- "q. Does not live in a locality where the air transport companies have 'available capacity' and therefore offer 'creative' fares.
- "r. Is not related to an airline employe, postal inspector, or other privileged character entitled to a pass.

"And be it further resolved that, should such a character be discovered, that the government of the country of domicile should capture this rarity, stuff it, and circulate it among the rate-making officers of air transport companies throughout the world, so they may see what they have done to the one species that paid this industry enough so that a profit could be made."

Notes from all over: Got a kick out of hearing about Bob Hodder, American Airlines' Oklahoma City sales manager, receiving a wire addressed to American Airlines Slagshop. He says he also has an agent who told a passenger that AA has a non-flop flight to San Francisco . . . Delta Air Lines is wondering what Wisconsin Central Airlines has against Knoxville. WCA issued an interline ticket to that fine city, but spelled it Knoxville . . . TWA is looking for more passengers like the party of four that boarded in San Antonio for New York with 19 bags weighing over 800 lbs. Excess baggage bill was \$311.



VHF Transmitters • H. F. Transmitters • Radio Control Panels • Antennas • Indicators
 Automatic Radio Compasses • Marker Beacon Receivers • Announcing Systems
 VHF Communication and Navigation Receivers • Inter-Communication Systems
 H. F. Receivers • Radio-Magnetic Indicators • Ground Controlled Approach Landing
 Systems • Flightweight Personal Plane Radios • VHF Omni-Directional Range Systems



REG. U.S. PAT. OFF.

Whatever the Plane or Purpose . . .

Bendix Radio

...and still we're seeking final answers!

You can't sit on your hands in the aviation business. The phenomenal growth of the industry has come from its inherent belief that "there is always a better way". That is why Bendix Radio devotes as much time and thought to future products as to present production. And results have amply proved the wisdom of this policy. Basic advancements in VHF and

UHF radio, and in GCA, in omni-directional equipment and other navigation aids, have firmly established Bendix Radio as the leader in *thinking* as well as *doing* in its highly specialized field. If you are looking for the latest in airborne or ground radio equipment, better check with Bendix Radio. After all, it's just good judgment to look to the leader for leadership.



One of the world's busiest planes—this flying laboratory in which Bendix Radio research engineers flight-test every new idea in aviation communication and navigation.



PERFORMANCE

Every major airline relies on Bendix radio communication and navigation equipment—a preference based on sterling performance under every conceivable flight condition in all parts of the world.



FLEXIBILITY

Buying job-designed Bendix Radio allows you to choose for yourself, from a single reliable source, any type of installation, or any combination of equipment—because Bendix Radio builds a complete line of aviation radios.



ECONOMY

For the private flyer, Bendix Radio builds airline quality equipment at prices exactly proportioned to every job and every purse—from a small battery-operated receiver on up.



ADVANCED DESIGN

In the present defense program, Bendix Radio is engaged in helping to find answers to completely new problems. Bendix Radio builds equipment for America's newest Air Force planes.

is the Choice

BENDIX RADIO DIVISION of
BALTIMORE 4, MARYLAND

Export Sales: Bendix International Division,
72 Fifth Avenue, New York 11, New York



P.S.

Our VHF Omnidirectional Range Navigation system is a fine example of what's new in aviation radio.

Write for booklet and get up-to-date on this great development.

The NEW 1949 Aircraft Year Book

Official Publication of the Aircraft Industries Association

To be published on January 15, 1950

INSURE DELIVERY BY ORDERING NOW!

For 30 Years THE Standard Reference of U. S. Aviation

- More than 300 American airplanes described in detail—photographs and three-view scale drawings.
- Historic planes and the finest chronology of aviation events ever published.
- Detailed report on aviation by-products—from pie pans to movie cameras.
- 29 pages of aviation records and the men who made them.
- Handy reference for model makers.
- A complete review of developments in the Armed Services, the aircraft industry and the airlines.
- Thumbnail biographies of 1,000 present-day aviation personalities.
- Complete current bibliography of aviation books.
- A preview of tomorrow in the air—jets, record-breaking speeds, electronic safety devices.
- Completely indexed.
- An invaluable reference to sales possibilities.

ORDER NOW

THE LINCOLN PRESS, INC.
Publishers, The Aircraft Year Book
Warner Building, Washington 4, D. C.

\$6 a copy

PLEASE RESERVE ME COPIES OF THE AIRCRAFT YEAR BOOK

NAME (Please Print)

STREET

CITY

ZONE

STATE

☐ CHECK

☐ MONEY ORDER

(Signed)

THE MOST COMPLETE AVIATION REFERENCE EVER COMPILED

Causes and Cures:

Ignition Conference Report Outlines Major Improvements

It has been estimated that 50% of all airline delays attributed to powerplants are caused by ignition systems. The record indicates that many delays attributed to ignition, and particularly to spark plug problems, are not properly allocated. None-the-less, ignition system troubles have plagued the airlines and the military services for many years.

One of the most constructive attempts to do something about ignition difficulties is manifested in the yearly aircraft spark plug and ignition conferences sponsored by the Champion Spark Plug Company. In its most recent conference, Champion uncovered considerable research work on the part of the airlines, oil companies, engine and accessory manufacturers toward correcting these shortcomings.

The corrective action can be classified under new equipment, improved operating practices and increasing know-how in the fields of handling and overhaul of spark plugs. Developments in the field of new equipment include the adoption of Scintilla's low-tension ignition systems by a number of airlines as standard equipment and the service testing by other lines of General Electric's high-frequency system.

Service Results and Tests

Among the lines now turning to low-tension ignition are Braniff, Delta, and Northeast Air Lines, all converting to Scintilla's low-tension system as engines go through overhaul. Already using the Scintilla system are KLM, National, TWA, Pan Am, Eastern Air Lines and Sabena. Pratt and Whitney is supplying Scintilla low-tension equipment as standard on all R-2800 engines and the Air Force and Navy have specified it for the P&W R-4360 engines.

Pan American has accumulated some 1,000 hours service test experience with the General Electric high-frequency ignition system in the Convair Liner and another 400 hours on the Douglas DC-6. In speaking of their tests, Arthur Kuhn of Pan American's Latin American Division told the conference that they are enthusiastic about the results. Acknowledging that there must be some bugs in the system, he confessed that so far they had discovered none.

Primarily the low-tension and high-frequency systems stem from the acknowledged shortcomings of the present day high-tension systems. In high-tension systems, engine-driven magnetos generate voltage in excess of 10,000 volts which is carried through distributors and

wire to the dual spark plugs in the cylinders.

High Tension Limitations

Voltage in the wires connecting the distributors and plugs is high and leakage common. High altitudes increase shorting problems and some plug designs permit flashover in the shielding barrel, and similar difficulties. Corona effects inside and outside the wire harnesses react with moisture to form acids which attack system components and promote additional leakage. Capacitance characteristics of the system limit peak voltages at the spark plug proper. Radio interference is aggravated by ignition shortcomings.

In the General Electric and Scintilla systems long high tension leads are eliminated by moving the step-up transformer from the magneto housing to a point adjacent to the spark plug. In the General Electric system the transformer is built into the spark plug. In the Scintilla sys-

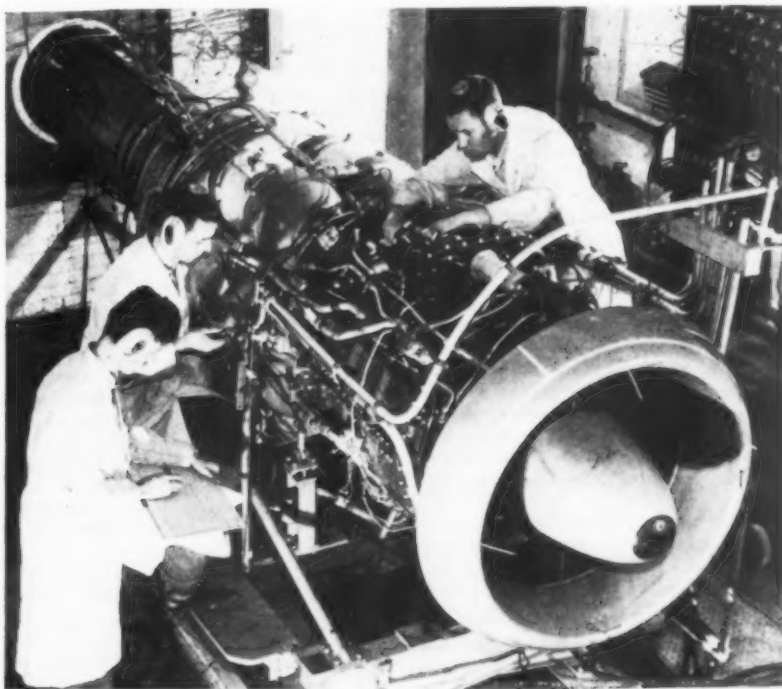
tem the transformer is built separately from the plug and mounted on the engine baffles. Both companies are understood to be adapting their equipment for either transformer location.

Relocated Transformers

In the Scintilla ignition system the voltage in the leads to the transformer is about 300 volts while in the General Electric system it is approximately 3200 volts. At this time there has been no clear line of demarcation established between high and low voltage systems. The GE system design eliminates the breaker points, a source of major trouble, by using a capacitance circuit and by grounding the circuit through the distributor for firing the ignition charge.

The manufacturers and proponents of these systems claim that the results include generally improved operation and less erosion of the plugs. Improved operation is provided by minimizing high-tension leaks and realizing a steep-wave voltage curve by minimized capacitance of the system—hence optimum voltage at the plug gap. Lead and oil deposits forming on the plug, which might otherwise short it out, can often be burned off.

Spark plug erosion characteristics control the maximum overhaul periods and total plug life. One of the major factors in controlling erosion is the shortening of the firing interval of the



Orenda Jet—A view of the Orenda jet engine in its test cell at the Malton plant of A. V. Roe-Canada, Ltd. is shown here. The engine has been under test for 8½ months and completed more than 750 hours without a major rebuild or overhaul. The engine is scheduled for installation in the Avro XC-100, a jet fighter. It is an axial flow design which is expected to produce approximately 7,000 lbs. thrust.

OPERATIONS-MAINTENANCE

ignition system. With an ordinary voltage curve, firing intervals are long and possibility of erosion is enhanced. With the steep-wave voltage curve of the new systems firing intervals are decreased and so is erosion.

Costs Key to Conversion

With these apparent advantages, it would appear that all airlines would switch to the newer equipment. Actually the economics of the change-over appears to be the controlling factor. During Champion's conference Scintilla representatives indicated that the cost of converting to low-tension ignition is \$2,750 per engine including engine and airframe conversion kits, spares, training, test stands, obsolescence of old parts, etc.

American Airlines indicated that the General Electric system, including conversion costs of the same nature, would be about \$3,579. American's Paul Kovac had some interesting figures regarding ignition losses as compared to conversion costs.

AA estimates that schedule delays resulting from ignition troubles cost \$8,500 per year on the Douglas DC-6 and \$11,500 per year on the Convair Liner. A 40% reduction in these delays would save American \$1,000,000 in five years but a saving of 20% would result in a loss or possibly in breaking even on the conversion. The controlling factor is the cost of conversion.

Fine-Wire vs. Massive-Electrode

High-tension ignition systems have been using both massive-electrode and fine-wire type spark plugs. It appears that the airlines will continue to use both types even after changing to the newer systems. There are sharp differences of opinion as to the merit of the two types. Considering basic costs American claims to be saving \$160,000 a year by using the massive-electrode plug. This is based on operating 70,000 engine hours per month.

Trans-Canada suggested that fine-wire plugs may have superior cold weather performance and be cheaper to repair. This was borne out by USAF representative Walter Berberian who stated that the USAF uses fine-wire plugs in all aircraft operating in Arctic regions during the winter.

Kovac cited the fine-wire plug types as more suitable for firing lean fuel mixtures and indicated that the trend toward leaner and leaner mixtures might make it advisable to turn to this type design in the future.

Cold-Weather Performance

While the cold-weather performance of the fine-wire plugs was praised, operators indicated that increasing the gap setting of the Champion R-37S-1 massive-electrode plug from .012 to .014 improved cold-weather operation. Unscheduled spark plug removal rates on the P&W R-1830, R-2000 and R-2800 engines went from 3, 3.5, and 4.6 re-



BOAC's Stratocruisers—

Two interesting views of the equipment on board BOAC's Boeing Stratocruisers are shown here. On the left is the special awning which rolls out over the loading ramp presenting an unusual appearance which will distinguish the British service. On the right the awning can be seen rolled up into position over the door when the door is closed. This photo also shows the instruments provided for passenger convenience. Located on the panel over the spiral staircase leading to the lounge are an altimeter, true air speed indicator, compass, clock, free air temperature gage and cabin air temperature gage. Note the fine grain paneling used around the staircase.

spectively per 1000 hours of engine operation to .6, .6 and 1.2 removals per 1000 hours when gap settings were increased as indicated.

Large variations in service life of plugs and other factors directly affecting over-all costs were apparent from data submitted by the airlines. Total plug life varied from 450 hours to 1000 hours. Actual overhaul life ranged from 115 hours to 330 hours. In overhaul of spark plugs, hourly labor output ranged from eight plugs per man-hour to 36 per man-hour. On the whole, hourly overhaul rate is about 15 plugs. The range of production emphasizes the value of proper cleaning and setting equipment.

While it appears that an arbitrary limit of approximately .025" erosion has been used by some airlines, the feeling seems general that high erosion rates can be tolerated with the maximum shifting toward .040", an appreciable increase in terms of plug life, considering the erosion rate per 100 hours service averages about .002-.003. Evidence indicates that erosion tendencies are reduced as plug time is increased and this is another important aspect of higher permissible erosion.

Improvements Without Conversion

Operating practices are being worked out to minimize spark plug troubles. For instance, Pan American found that sodium originating from the fly-away oils used to prevent rusting and corrosion of newly-installed engines, was fouling the plugs. Now PAA drains engine oil following each of three successive one-hour runs to remove all traces of the chemical. PAA reported that this procedure has decreased spark

plug fouling on initial runs by 100%.

Both the Scintilla and Sperry engine analyzers are being used to great advantage in flight and on the ground to isolate ignition troubles. During the meeting it was stated that the Sperry unit analyzer costs about \$3,500 compared to \$1,200 for the Scintilla unit. Pan American indicated it will install the Sperry analyzer a regular part of the flight engineer's panel.

In the Boeing PAA has been using the analyzer to detect lead fouling and using slightly richer mixtures brought about by using the primer, ADI or carburetor heat, to clear up the trouble. Pan Am is considering using the analyzer exclusively in place of RPM or IMEP drop on magneto checks.

Sabena reported that when it started giving the DC-6 planes a 30 inch magneto check on arrival of the ship at New York, unscheduled spark plug removals were reduced by 75%. The procedure was initiated simply to check ignition before the airplane arrived at the gate but was effective as an ignition correction. P&W has instructed the USAF to operate the R4360 engines at 2,000 rpm and 30 inches manifold pressure for two minutes after each 15 minutes idling to minimize plug fouling.

Plug Fouling and Cleaning

Tests made by Shell Oil's Wood River Research Laboratory are reported to have shown metallic lead to be the worst offender in fouling spark plugs. This was borne out in actual engine tests and an analysis of plugs fouled in airline service showed that 4% of these showed signs of metallic lead. Pan American feels that the use of

108/135 fuel will reduce the lead problem and save money. It was reported that research is still going on to find a more effective lead scavenging agent. Standard Oil representatives said that lead content can be reduced by increasing the quality of the base stock to offset the reduction in lead but this raises costs and might reduce availability.

Among the cleaning methods used in spark plug overhaul discussed in the meeting were regular sand blasting, vapor-blast cleaning as used by the USAF and Navy, etc. It was interesting to note that two divisions of PAA are putting new spark plugs directly into service without so much as removing preserving oils, and that they consider overhauled plug performance comparable to new plug performance.

Some airlines seem dissatisfied with the results of present-day test equipment and Northwest Airlines is building a pilot model of a cleaner which uses potassium hydroxide as the agent. Pratt and Whitney is working on a hot bomb tester which brings the spark plug to operating temperature before testing it. Ten of these P&W testers have been built and the company plans on loaning them out to airlines conducting service tests on plugs.

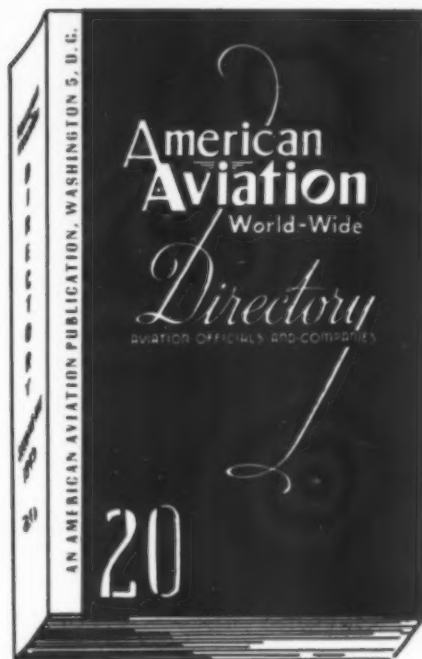
Daily Plane Utilization Domestic

		Sept.	Oct.
AA	2 eng. pass. . . .	4:49	4:55
	4 eng. pass. . . .	7:54	7:50
	cargo	4:58	4:46
Bnf.	2 eng. pass. . . .	6:59	7:01
	4 eng. pass. . . .	5:31	6:34
Capital	2 eng. pass. . . .	8:52	8:04
	4 eng. pass. . . .	9:02	8:57
	cargo	3:25	3:20
Carib.	2 eng. pass. . . .	3:27	2:57
	4 eng. pass. . . .	9:01	9:09
C & S	2 eng. pass. . . .	9:03	9:10
	4 eng. pass. . . .	6:59	5:52
Col.	2 eng. pass. . . .	6:11	3:25
	4 eng. pass. . . .	6:46	6:25
CAL	2 eng. pass. . . .	7:42	7:12
	4 eng. pass. . . .	5:40	5:38
	cargo	6:26	6:06
EAL	2 eng. pass. . . .	10:51	10:50
	4 eng. pass. . . .	8:23	8:32
	cargo	5:41	6:31
Hawaiian	2 eng. pass. . . .	4:42	4:29
	cargo	2:53	2:31
Inland	2 eng. pass. . . .	10:54	9:31
	4 eng. pass. . . .	7:38	7:46
MCA	2 eng. pass. . . .	6:42	6:42
	4 eng. pass. . . .	6:58	6:39
	cargo		:29
NEA	2 eng. pass. . . .	6:26	5:28
	4 eng. pass. . . .	1:39	:10
NWA	2 eng. pass. . . .	5:15	5:42
	4 eng. pass. . . .	7:56	7:41
	cargo	4:15	3:40
Trans Pac.	2 eng. pass. . . .	4:15	2:40
	4 eng. pass. . . .	7:38	7:13
TWA	2 eng. pass. . . .	9:30	8:52
	4 eng. pass. . . .	5:37	5:50
	cargo	6:12	5:32
UAL	2 eng. pass. . . .	7:20	7:01
	4 eng. pass. . . .	5:05	5:32
WAL	2 eng. pass. . . .	5:46	5:47
	4 eng. pass. . . .	1:30	2:26
	cargo		

READY NOW!

*the 20th
Revised
Edition*

**FALL-WINTER
1949-50**



AMERICAN AVIATION DIRECTORY

\$5⁰⁰

*The only all-inclusive, all-purpose guide to
organizations, personnel and products
throughout world aviation*

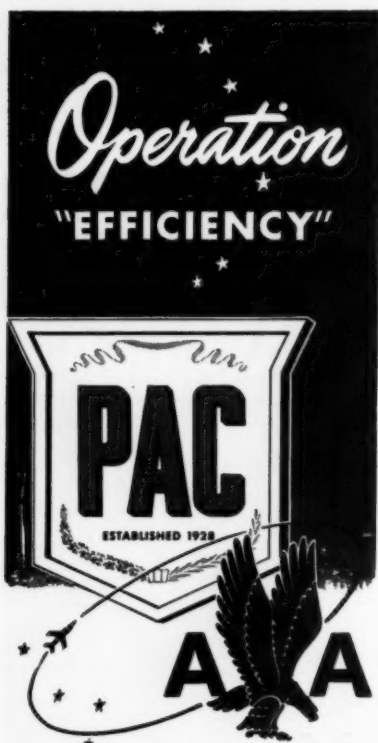
Up-to-date, complete personnel and product listings for every organization in every branch of aviation . . . AIRLINES, MANUFACTURERS LOCAL AIR SERVICES, TRADE ASSOCIATIONS, GOVERNMENT AGENCIES, etc. . . . plus a complete EQUIPMENT BUYERS GUIDE.

Order From

AMERICAN AVIATION PUBLICATIONS

1025 VERMONT AVE., N. W.

WASHINGTON 5, D. C.



WE'RE KNOWN BY THE COMPANY WE KEEP!

The proud emblem of American Overseas Airlines is etched against the skies above every important city in the world. On its overseas routes alone AOA transported over 82,000 passengers during 1948 plus 10,215,150 pounds of vital cargo. American carries responsibility, too! There's responsibility to the United States government, to their air freight clients and to the traveling public. PAC is proud to be a partner in these trusts, and to service the far-flung operations of this great pioneer airline. Here's another evidence of teamwork...PAC and AOA...

"OPERATION EFFICIENCY"



Extra Section

By William D. Perreault



IN a recent bulletin from the Flight Safety Foundation, Jerry Lederer related some interesting facts regarding static electricity and the importance of proper static grounding. We were particularly attracted by his comment that aircraft tie-down rings are not suitable grounds. Lederer indicates that the concrete around these tie-down rings often acts as an effective insulating barrier which actually prevents grounding.

This is the 24th edition of Extra Section and we want to take this opportunity to thank our readers for the interest they have taken in this effort and contributions they have made to it.

In a recent public notice the Federal Communications Commission recommended the discontinuance of wartime symbols (P,L,S, etc.) in identifying various frequency bands and urged the adoption of the international standard. Since there always appears to be some confusion in separating these categories we present them here for reference: VLF, below 30 kilocycles; LF, 30 to 300 kc; MF, 300 to 3,000 kc; HF, 3,000 to 30,000 kc; VHF, 30,000 kc to 300 megacycles; UHF, 300 mc to 3,000 mc; SHF, 3,000 mc to 30,000 mc, and EHF from 30,000 mc to 300,000 mc. The latter three bands, which are less familiar to most of us, are ultra high, super high and extremely high frequency bands.

Pratt and Whitney delivered the 4,000th Wasp Major engine recently. It seems like only a few years ago that we in the production test group at P&W would go into the machine shops "on business" to get a hurried look at the four-throw crankshaft underway for the Major. The rumor that this new engine would produce 3,000 horsepower spread through the plant. Now the engine is rated at 3500 horsepower and P&W has announced that an advanced model has passed the 150-hour qualification test at more than 4,000 horsepower.

Our friend Hy Yoshizato, inspector at Colonial Airlines, tells us that Sabena has the interior of the hydraulic compartment, or "Hellhole," of the DC-6 painted white to simplify inspection. Hy claims the maze of plumbing valves, etc., really stand out, making inspection a much easier task. Looks like this would be quite a job to do once the airplane is in service but perhaps suitable masking of parts could be accomplished to spray these areas.

Handling the technical side of aviation happenings has very few compensations. There's too much technical about the industry. The one real consolation we get here is the monthly copy of the Gould Battery News, which, as a technical publication, sometimes reaches this desk. Have you seen the Gould Battery News, or aren't you aware why it is the most sought after publication that passes through this office month in and month out? Gould Battery News, 65 E. Tenth Street, Saint Paul, Minnesota.

CAA has released figures showing that there were 60,420 certificated mechanics in May and 9,763 air traffic control operators. California has the greatest number of mechanics with 9,953 on record and New York follows with 8,056. New York leads in the certificated dispatcher class with 299 and California is second with 255 dispatchers. California leads with 1,033 air traffic control operators followed once more by New York with 793. There is a total of 1,689 certificated dispatchers and 1,805 certificated parachute technicians.

Overhaul Briefs

Colonial Airlines has purchased another Douglas C-54 type military transport from Texas Engineering & Manufacturing Co. of Dallas, Texas. The contract calls for Temco to completely overhaul and convert the aircraft to a 44-passenger interior. Total dollar value of the contract is approximately \$200,000. The ship is scheduled for delivery early in 1950. This is the third C-54 to be purchased by Colonial.

Formation of Aircraft Maintenance International, Inc., a service organization offering maintenance for airlines, has been announced by Everett H. Schroeder, president of the newly-formed corporation. Headquarters of the new group is 51 East 42nd St., New York 17. The corporation is negotiating with the Port of New York Authority for construction of permanent facilities on New York International Airport.

American Airlines has contracted with Aviation Maintenance Corp. for the major overhaul of two Douglas DC-4 aircraft. AMC recently completed the conversion of 18 AA DC-4's for airfreighters and for passenger service.

AMC is also working on two Air Force contracts. One of these involves the overhaul of 30 C-47's and the other 78 AT-11 aircraft.

CAA has contracted with Airwork Corp. of Millville, N. J., for the overhaul of all CAA-owned Pratt and Whitney R-1830 and R-2000 engines and accessories. Twenty-four of the engines have been delivered to Airwork to start the program. Majority of engines are shipped from Oklahoma City and will be returned there on completion.

Accessory Overhaul Industries, Inc., of Richmond Hill, Long Island, N. Y., has appointed George E. Campbell, formerly with TACA Airways, as general sales manager.

Airwork Corp., Millville, N. J., has delivered the first rebuilt Continental E-185 engine to a foreign operator under its recently-announced light engine overhaul program. Customer was Dr. Gustavo de Bustamante, Beechcraft distributor in Havana, Cuba, who flew his Bonanza to New York on business and had the engine rebuilt during his visit. . . . Airwork has recently been appointed distributor for the Titeflex Corp. for the entire eastern portion of the U. S. and by the BG Corp. and Packard Cable for the state of Florida.

Under the terms of a contract between Lockheed Aircraft Service, Inc. and American Overseas Airlines, Lockheed will perform the inspection, testing and overhaul of AOA's Stratocruiser components and accessories including instruments.



Braniff Executive Designs Hammock-Type Airline Seat

A new standard in passenger comfort is promised by this chair designed by Jess Bennett, assistant to the president of Braniff Airways. Note that the base forms a triangle which is securely attached to the flooring. The moving elements which make up the back, seat and leg rest pivot on this triangle. The forward portion of the chair is positioned by dual coil springs which act as a heavy person on one end of a "seesaw."

By moving his weight rearward in the seat the passenger overcomes the spring tension and the chair will assume any position from vertical to almost horizontal. The horizontal portion of the seat tilts as the back reclines and this puts the passenger in an ideal position in the event of an impact. In such instances the impact loads force the passenger against the seat rather than out of it.

Bennett is interested in having 10 chairs service tested by the airlines without payment of royalties.

PAC and Stratos Corp. Sign Coordination Agreement

A technical assistance agreement, which provides for coordinated service for their respective products, has been signed by the Pacific Airmotive Corp. of Burbank, Calif. and Stratos Corp. of Farmingdale, N. Y., a wholly-owned subsidiary of the Fairchild Engine and Airplane Corp.

Under the terms of the agreement, the users of cabin air conditioning equipment manufactured by Stratos Corp. and cabin pressurization controls and similar products of PAC will be insured a coordinated service for systems using both types.

Among the Suppliers

Lear, Inc., Grand Rapids, Mich., has received production contracts from the U. S. Air Force for its F-5 autopilot and gyro indicating instruments which are scheduled for installation in the Northrop F-89 Scorpion fighter.

William W. Martens has been appointed manager of sales engineering of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. He joined Honeywell in 1931. Kent L. Wilson has been named manager of the company's newly formed manufacturers' division and will be succeeded as head of the Honeywell-Brown office in Dallas by T. S. Carley.

Frank Brine has been appointed advertising manager of The Babb Co., Inc., New York, N. Y. . . . Menasco Manufacturing Co., Burbank, Calif., has appointed J. I. Hamilton as general sales manager. He was formerly with Curtiss-Wright Corp. . . .

Dudley

Eric Dudley, formerly with Boots Aircraft Nut Corp., Stamford, Conn., has been named manager of aviation development and manager of the Pacific Coast district of Tinnerman Products, Inc., with headquarters at 6030 Wilshire Blvd., Los Angeles.

Lear, Inc., Grand Rapids, Mich., has appointed Ray A. Rugge chief engineer. Rugge was formerly head of the electrical design and development departments of the Airplane Division of Curtiss-Wright Corp., Columbus, Ohio.

John D. Ahlers, formerly with C-W's Propeller Division, Fairchild Engine and Airplane Corp., and Ranger Aircraft Engines, has joined The Babb Company's New York staff as an aircraft sales representative.

According to the National Safety Council, Pratt & Whitney Aircraft had fewer lost-time accidents during the first three quarters of 1949 than any other aircraft engine manufacturer in the country. With 3.6 lost-time accidents for each million man-hours worked during the nine-months period, P & W's frequency rate was only slightly more than one-half of the 6.5 average for all aircraft engine makers.

Burndy Canada Ltd., subsidiary of Burndy Engineering Co., New York, has expanded its sales, manufacturing and engineering facilities in Canada with the opening of a new factory at 381 Greenwood Ave., Toronto. Burndy electrical connectors and other electrical specialists for use in Canada will be manufactured at the new plant. . . . Products of the recently acquired Belfield Valve Division of Minneapolis-Honeywell Regulator Co. will be promoted and sold through 74 Honeywell branch offices in the U. S., Canada and Europe.

Use this

Rule of Facts

for measuring Advertising Values

Send the Right Message to the Right People

Paid subscriptions and renewals, as defined by A.B.C. standards, indicate a reader audience that has responded to a publication's editorial appeal. With the interests of readers thus identified, it becomes possible to reach specialized groups effectively with specialized advertising appeals.



A.B.C. AUDITED CIRCULATION FACTS AS A BASIC MEASURE OF ADVERTISING VALUES

THERE is no substitute for FACTS. That goes for measuring advertising values or making laboratory tests of materials for your factory. When you buy advertising space in a publication you have a cash investment in every copy of the issue that carries your sales message. Obviously some of the people who receive the paper are better prospects for your goods and services than others. Thus the distribution of your advertising, via the publication, becomes a No. 1 factor in the success or failure of your investment. To appraise a publication's advertising value to your business therefore it is necessary to have all the facts about its circulation.

Factual information regarding the identity, quality and size of business paper audiences is available to advertisers in the reports issued by the Audit Bureau of Circulations. The Bureau, a cooperative association of 3300 advertisers, advertising agencies and publishers, has established standards for measuring circulations—maintains a staff of experienced circulation auditors to audit the circulations of publisher members—issues the information thus obtained in A.B.C. reports for space buyers to use in evaluating, comparing and selecting media.

The audited information in A.B.C. business paper reports includes the answers to these questions: **How much paid circulation? How much unpaid? What do subscribers pay? What is their occupation or kind of business? Were premiums used as circulation inducements? How many subscribers renewed? How many are in arrears? Where are the subscribers located?**

By using the audited information in A.B.C. reports in connection with market facts you can accurately judge media for its advertising value to your business. This business paper is a member of the Audit Bureau of Circulations. Ask for a copy of our A.B.C. report and then study it.

AMERICAN AVIATION

1025 Vermont Ave., N.W.
WASHINGTON 5, D. C.

NEW PRODUCTS

Heavy Duty Sweepers

Wilshire Power Sweeper Co., 4615 Alger St., Los Angeles 26, Calif., has designed a new series 800 heavy-duty sweeper for indoor and outdoor maintenance. The specially designed brush assembly is mounted on a full floating ball bearing shaft enabling it to pick up dirt, paper, soda bottles, nails, shavings, bolts, nuts, leaves and other debris. A special guide prevents the machine from marring walls when working in restricted areas and a vacuum dust filter is avail-



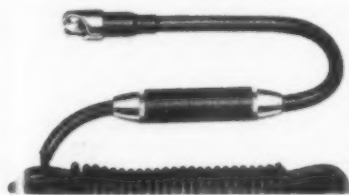
able where dust presents a problem. Powered by a 5-horsepower, air-cooled engine on the 36-inch sweeper, and an 8-horsepower engine on the 48-inch size, each sweeper has a 90-day guarantee. Optional features include a sulky-towing dolly to permit the operator to ride while sweeping, and a snow plow attachment for side walks.

Snow Melting Powder

The Chem Industrial Co., 1114 Hippodrome Bldg., Cleveland 14, Ohio, is marketing MELT, a chemical powder for melting ice and snow. Available in 25, 100 and 200-lb drums and in ton lots. The 25-lb. pail is an industrial pail suitable for general usage when emptied.

Flex Lite

Aero-Motive Mfg. Co., 1803 Alcott St., Kalamazoo 24, Mich., is marketing the model 500 Flex Lite, a particularly useful light for inspectors and mechanics. Constructed of metal and equipped with stainless steel sliding switches, these Flex Lites have an over-all length of 20 inches, rigid extension of six inches



and flex extension of 5½ inches. The bulb is enclosed in a sleeve which provides focusing adjustment and incorporates a heavy magnifying lens which also serves to protect the bulb.

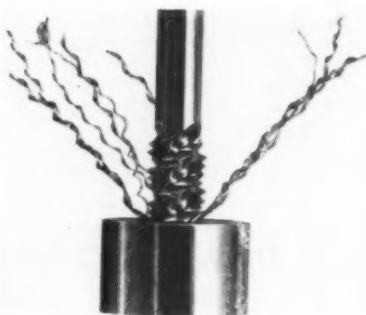
Another Aero-Motive model, the 110, provides a Flex Lite powered by 110 volts rather than by batteries. This light is 12 inches long and is provided with a service cord 12 feet long. Price of the latter unit is \$4.95.

Inquiries about equipment on this page may be sent either to AMERICAN AVIATION or direct to the manufacturer.

Readers looking for sources of special equipment are invited to write to AMERICAN AVIATION's equipment editor. Every effort will be made to provide information on manufacturers and suppliers who are in a position to furnish or develop needed airborne or ground equipment.

Rotary Broach

Shearcut Tool Co., Box 746, Reseda, Calif., is marketing the Shearcut Thread Forming Rotary Broach for forming machine screw-size threads. Available in right-hand spiral, or in left-hand cut by special order, the Rotary Broaches are claimed to pro-



duce perfect threaded holes by Shear-cut end pressure broaching action which requires about one-half the power required for tapping. They may be used to replace taps in tapping machines, automatics, turret lathes, lathes or any machine adapted for tapping operations as well as in hand operation.

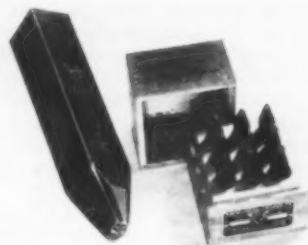
Load-Carrying Chains

Sierra Engineering Co., 123 East Montecito Ave., Sierra Madre, Calif., is marketing a miniature load-carrying chain and stud chain with non-corrosive or non-corrosive and non-magnetic qualities. Available in Beryllium Copper and stainless steel, the load-carrying chain weighs about ¾ ounce per linear foot and the stud chain about ½ ounce per foot. The stud chain is used in fabrication of special cameras, facsimile equipment, electronic equipment, radios and precision instruments. The load-carrying chain is adaptable in aircraft cockpit controls and other applications where its ability to operate around pulleys as small as 3/16 inches in diameter and pass through a 180 degree turn smoothly and without binding is important.

Additional information including an engineering data book available on request.

Metal-Marking Stamps

Acme Marking Equipment Co., 8030 Lyndon, Detroit 21, Mich., is marketing a set of fractional figure metal-marking stamps. Each unit is made of high grade steel, blued for rust prevention and equipped with a striking head tempered by a special process that is designed to prevent chipping or mushrooming. The set consists of nine stamps, reading 1/8,



1/4, 3/8, 1/2, 5/8, 3/4, 7/8 and 1 inch, plus a separate inches sign. Each stamp is clearly marked on the front with the character designation. Partial sets are also available. Mounted in a compact hardwood case with individual stamp compartments.

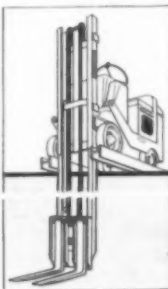
Self-Locking Set Screw

Set Screw & Mfg. Co., Bartlett, 12 Main St., Bartlett, Ill., is marketing a new self-locking set screw and adjusting screw called the Zip-Grip. Specifically designed for set screw applications in which vibration is a factor, the screws are available in all metals including soft or hard steel, case hardened or heat treated, stainless steel, brass, bronze or aluminum and in any type head. Triple-locking action is obtained by interference fit, tension and the locking of the set screw against the shaft or other part. The upper section of the screw has a larger pitch diameter of the thread section creating an interference fit against the thread flanks. A data bulletin containing detailed information and technical data covering applications is available from the manufacturer.

Fork Lift Truck

Towmotor Corp., 1226 East 152nd St., Cleveland 10, Ohio, has designed a new fork lift truck engineered to lower and raise loads between balcony storage areas and the first floor production line, and in similar applications. The unit is equipped with a non-tilt mast and carriage assembly designed to permit the forks to be

lowered 98 inches below the floor level. Mounted on a standard Towmotor fork lift truck, the elevator unit has a lifting and lowering capacity of 2,000 lbs. The truck can be built in various capacities and heights of lifts.



ATC Votes Funds to Study Automatic Reservations Plan

By ERIC BRAMLEY

Expenditure of \$10,000 for a study of the practicability of an automatic reservations system for airline use was approved at the recent meeting of the Air Traffic Conference. The study will be made in New York.

The meeting also decided that the time has come when the airlines must do something about standardizing as much as possible the public address announcements made at airports.

The \$10,000 fund established in connection with the reservations study will be used to cover the salary of a project manager, expenses, analyses, etc. The manager, who would serve for one year, is still to be selected.

Needs More Study

ATC members have little doubt that an automatic reservations system will be used throughout the industry. Automatic equipment is available today, but there is said to be considerable research work to be done by members before installation plans can be formulated.

A report of an ATC sub-committee that has been working on the problem stated that while the reservations systems in use today meet the present requirements of the industry, there is need for "additional planning and research to further improve passenger sales and handling and to reduce costs."

Mechanization, it is felt, will accomplish these aims and will lead to (1) reduction of personnel costs, (2) maximum elimination of human error factor, (3) versatility of adaption to changed selling conditions, and (4) potential sales advantages such as faster selling by sales agents, faster inventory recording, and superior quotation and sales service to passengers.

Seeks Standardization

On the subject of public address announcements, the feeling seems to be: keep them short, cut out some of the "plugs" that creep in, and make them understandable. Said ATC: "It is apparent that although many of the announcements are unnecessary and irritatingly long, overloading in itself is not the problem, but rather misuse, carelessness and inaction on the part of the airlines and terminal authorities has resulted in very poor announcements which cause irritation to passengers." A check at Chicago, Boston, New York and Washington showed that PA systems are not overloaded.

The ATC members are not kidding themselves that they will be able to at-

tain complete standardization, but they want to work as far as possible toward that goal. Length of announcements must be cut—some "are made for the advertising benefits derived instead of for the accommodation of passengers."

Unnecessary announcements must be eliminated, such as paging a passenger several times, and indiscriminate paging of employees. Personnel must be trained to hold the microphone properly, enunciate clearly and speak slowly.

In order to work toward standardization, it was recommended that airlines incorporate the following basic elements into announcements:

- (1) Normally the maximum number of stops to be announced be limited to five with the use of the words "and intermediate stops" when the flight will make more than five stops.
- (2) The words "attention please" not be used except on departures or delayed departures.
- (3) Departure announcements be limited to an original and a final.

(4) No reference be made to type of equipment unless the trade name of the equipment, such as "Sky-liner," is omitted.

(5) If flight is a special name flight, the special name may be included following the trade name of the equipment.

(6) Omission of miscellaneous phrases, such as "on-time departure."

ATC has set up several recommended announcements. The one on departure, for example, should take about 40 seconds; final call, 35 seconds; deferred or delayed departure, 40 seconds; arrival, 15; paging, 13, and extra section, 40.

Representatives of airlines in each city are also to act as a committee to study and explore the advisability of eliminating loud speakers in terminal restaurants, coffee shops and bars and to study PA systems for the purpose of recommending necessary improvements.

There is a feeling that PA announcements in restaurants, especially at busy terminals with a large volume of flights, are irritating to the patrons. And in bars and coffee shops, some officials feel that it is better to have passengers rely upon their watches rather than wait for a departure call. If passengers still have coffee or a drink to finish when departure is announced, they'll be late reaching the gate, whereas they'll probably allow more time if consulting their watches, it is felt.

Crary, Airline Traffic Dean, Begins 15th Year With United

Dean of airline traffic in the U. S. is short, stocky Harold Crary, one of the most energetic and tireless executives to grow up with the industry. On January 1, 1936, he became vice president of United Air Lines, but his airline background began in February, 1928, when he became general manager of the American Air Transport Association, the first trade organization of airlines.

Crary produced the first consolidated timetable, forerunner of the *Official Airline Guide*, when there were 20 small companies flying single-engine equipment and mostly carrying mail. Today only four of those early airlines remain under their original names. It took two months for Crary to get together the timetable data and he flew every mile of every line to acquaint himself with the carriers who made up the association. He was the only man in the U. S. who had flown over the complete domestic system at that time.

When United Aircraft Transport Corp. was formed in 1930, Crary resigned from the trade association to become director of advertising, pro-

motion and public relations for Boeing Airplane Co. and the Boeing System, the nucleus from which United Airlines developed its present nationwide system. In the early years Crary led the industry in developing passenger traffic, for in 1928 90% of the revenues were coming from mail pay.

Crary wrote the first advertisement featuring 30-hour 16-stop transcontinental air service. From the start he has had a prominent part in advertising programs not only for United but for the industry as a whole. Because of his long association with one company, United's advertising and sales policy has been the most consistent of any airline.

An indefatigable traveler, Crary is noted for the manner in which he keeps in constant touch with traffic offices from coast to coast. His only relaxation is golf. He is a prime example of concentration on and devotion to a job. Under his supervision are all traffic, sales and advertising matters and United was the first airline to adopt the practice of having all three divisions under a single head.

Over the Counter

By Eric Bramley



Sales Promotion

ONE of the most novel and eye-catching promotion letters we've seen in some time was that sent recently by **Chicago & Southern Air Lines** to travel agents, announcing this season's all-expense Caribbean air cruises. It says, in red type, that this is "hot, hotter, hottest" news, and it's so hot, in fact, that the letter is burned and scorched all the way around its border. An A-1 promotion job, and we'd like to know how the scorching was done. The new C&S cruise folder, incidentally, tells you everything you need to know. It's complete.

A new travel folder, "Short Cut to Summertime," is now being distributed by **United Air Lines**, listing a variety of winter vacation areas . . . United has opened a newspaper advertising campaign in seven mid-west and eastern cities to make the public aware of the economy of air travel as compared with new higher rail fares. Cities are New York, Chicago, Cleveland, Boston, Hartford, Springfield and Philadelphia . . . **Jeanne Brown**, United stewardess, is writing the ad copy for the new "Mary Mainliner" series. UAL started the series last spring but discontinued it when stewardesses complained that the copy wasn't true to life. Miss Brown is to supply the right touch.

Wiggins Airways is issuing an attractive and handy vest pocket timetable . . . **Colonial Airlines** promoting winter sports business by giving the public up-to-the-minute reports on snow conditions in Quebec, Vermont, and in the Saranac Lake, Lake Placid, Snow Valley, North Creek and Lake George areas . . . At Whittle Springs Golf Club, Knoxville, the marker at each of the 18 holes (containing information on yardage and par) says "Fly Capital Airlines." A "good and inexpensive" way of promoting **Capital**, says Jim Austin, v.p.-traffic and sales . . . **Eastern Air Lines** trying a new business-getter—a "gift travel" plan under which gift travel orders may be exchanged by the receiver for travel to any point on EAL's routes.

A very effective way of building confidence in an airline is being used by **Trans-Texas Airways**. The company has printed two attractive four-page folders, each containing pictures and histories of flight personnel—where they've flown, miles, hours, etc. Some 50,000 of the folders are being distributed on the airplanes and over the counters, and the response so far has been very favorable.

American Airlines and **American Overseas Airlines** have distributed to shippers the second edition of "International Shipping Guide," containing rates and shipping information to destinations all over the world. It's really a complete job and should prove invaluable as a business-getter and a goodwill-builder . . . Both **Capital Airlines** and **KLM Royal Dutch Airlines** have received merit awards in the direct mail field from the Direct Mail Advertising Association.

Passenger Service

PAN AMERICAN-GRAPE Airways has added full-course hot meals and hostess service to its U. S.-South America tourist class service. Previously the company served refreshments and coffee and had a flight steward aboard the DC-4's.

New Services and Tariffs

NORTHWEST Airlines on Dec. 15 started coach service between Twin Cities and Anchorage, Alaska, four trips weekly, with one-way fare of \$126 against \$138.40 regular . . . **KLM Royal Dutch Airlines** last month introduced 21-day round-trip excursion fares as follows: Miami-Kingston-Miami, \$100; Miami-Port au Prince-Miami, \$110; Miami-Ciudad Trujillo-Miami, \$117. They expire next May 15 . . . CAB has denied **Mid-Continent Airlines** permission to serve Mitchell, S. D., which is a stop on Mid-West Airlines' route. The city does not need both services, CAB said.

Braniff Airways has entered a joint arrangement with **Union Pacific Railroad** to carry vacationers to and from Sun Valley, Idaho, for the ski season which opened Dec. 17. Passengers ride Braniff to Denver and connect with UP. Braniff offices handle complete ticketing and hotel reservations . . . All **American Airways** was to inaugurate last month a "2 day 2 way" plan, under which return fares are reduced 75% on round-trip flights between intermediate points and terminal cities where there is no competitive service. Round-trips must be completed within a period not to exceed two days.

Delta Air Lines has received CAB authorization to serve Chattanooga as an intermediate point between Atlanta and Knoxville, provided it does not engage in Chattanooga-Knoxville local operations . . . Clive Adams, **British European Airways'** North American representative, has opened offices at 489 Fifth Ave., New York. He will concentrate on increasing BEA's dollar business through interline bookings with various airlines.

LOCKHEED LODESTAR

FOR SALE

Travel fast and in comfort in this reasonably-priced twin-engine airplane. In the passenger cabin of this executive-type plane are one divan, seven reclining chairs, card table and desk, lavatory compartment, instrument panel, radio headphones, ship-to-shore radio, complete high-pressure oxygen system.

Dual flight instruments and A-3 auto pilot.

Radio equipment consists of W.E. 233-A VHF transceiver, R-89/ARN-5A and BC 733-D ILS receivers, Bendix RTA-1B transceiver, Bendix MN-26L radio compass, Bendix RA 10 DD range receiver, Bendix MN-53 Marker Beacon Receiver.

Engines: Wright 205A's, low time since factory overhaul, equipped with Breeze electric harness and Air-equip lines.

Spare parts: one engine, starter, generator, fuel and vacuum pumps, tail wheel and main wheel.

Total airplane time, 4,394 hours; since conversion and complete overhaul, 2,622 hours.

Plane is in active service and in excellent condition. It can be inspected by appointment at the New Castle County Airport, Wilmington, Delaware. Price: \$45,000. Reason for selling this Lodestar: It has been replaced by a larger plane. Write or phone Director of Traffic.



HERCULES POWDER COMPANY
Traffic Department
WILMINGTON, DELAWARE



in ATLANTA

The Ansley
Joe Cracy, Manager

in BIRMINGHAM

The Tutwiler
Ira Patton, Manager

in NEW ORLEANS

The St. Charles
J. J. (Mike) O'Leary,
Vice Pres. & Mgr.

in NASHVILLE

The Andrew Jackson
Leon Wamble, Manager

in MONTGOMERY

The Jefferson Davis
Homer Spiva, Manager

Executive Offices: Atlanta

Carling Dinkler, President
Carling Dinkler, Jr., V. P. & Gen. Mgr.



Dixie Picks the DC-6:

Delta DC-6 Loads First Year Surpass 2 Big Bowls Full

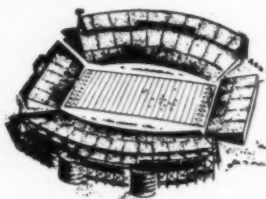
In a year and a month
180,000 passengers picked
Delta DC-6's in preference to
any other available planes.

That's 30,000 more than
Orange and Sugar Bowl
capacities. Reason for this
total is easy:

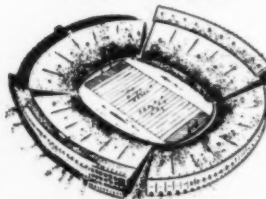
**Delta Offers the Most
for the Travel Dollar**



General Offices: Atlanta, Ga.



Orange Bowl
Miami 65,000



Sugar Bowl
New Orleans 85,000

TRAFFIC & SALES

Pioneer Segment Extensions Recommended by Examiner

CAB Examiner James M. Verner has recommended that all but one segment of Pioneer Air Lines' Route 64 be extended for from one to five years, and that trunkline services of Continental Air Lines at Big Spring and those of American Airlines at Abilene and Big Spring be suspended.

Five-year extensions were proposed for Pioneer's Houston-Amarillo, Dallas-Houston and Dallas-Midland segments; a one-year extension for the Lubbock-Albuquerque segment, and no extension for the Amarillo-El Paso segment. Final Board action on the extension or termination aspects of Pioneer's routes would be retroactive to November 14, 1949, the originally set expiration date for the line's three-year temporary certificate.

CAB Briefs

The Board turned down a request of Mitchell, S. Dakota, for trunkline service by Mid-Continent Airlines, saying it wanted to give Mid-West Airlines, a certificated feederline on whose routes Mitchell is a key point, a "fair opportunity to succeed."

An application of Mid-Continent Airlines for an alternate route from Kansas City to New Orleans via Springfield, Mo., Little Rock and El Dorado, Ark., Monroe and Baton Rouge, La., was denied by CAB. In the same opinion, the Board deferred Delta Air Lines' application to include Monroe, La., as an intermediate between Shreveport and Alexandria on the Fort Worth/Dallas-New Orleans segment of Route 24 for consideration with the reopened Mississippi Valley and Southeastern States Case.

Wien Alaska Airlines, Inc., which has been rendering passenger and property service between Fairbanks and Kotzebue, Alaska, since 1947, was authorized to transport mail also between these points through June 30, 1956. Simultaneously, CAB denied a request of Toussaint Air Service for a certificate to operate between Fort Yukon and Fairbanks and in the area of the Upper Yukon.

Authorization has been issued to Delta Air Lines to serve Chattanooga as an intermediate point between Atlanta and Knoxville on Route 54, subject to the condition that Delta shall not engage in local operations between Chattanooga and Knoxville.

The Board has granted a special exemption to Transocean Air Lines to operate a maximum of ten round-trip flights within the next three months between Guam and Tokyo, so as to afford U. S. workers on Guam an opportunity to take advantage of recreational and diversionary activities available in Tokyo.

WORLD'S PREMIER AIRPLANE FABRIC

lighter

stronger

smoother

FLIGHTEX

FLIGHTEX FABRICS, Inc. • 93 WORTH STREET • NEW YORK 13, N.Y.

Leading Manufacturers of
Fabric and Tapes for the
Aircraft Industry.

FLIGHTEX FABRIC

Export Representative
AVIQUIPO, Inc.
25 Beaver Street, N. Y.
Cable: Aviquipo

WORLD-WIDE distributors of multi-engine transport type aircraft, engines, their components and accessories. Agent for WAR ASSETS ADMINISTRATION. Write, wire or telephone your requirements.



General Offices and Export Department: 34-17 Lawrence Street, Flushing, L. I., N. Y.
West Coast Office: Oakland Municipal Airport, Oakland, California
Canadian Office: Frank Ambrose Aviation (Canada) Ltd., Dorval P. Q., Canada.
Panama Office: Frank Ambrose Aviation, S. A., Calle Segunda No. 8, Panama City, R. P.
Established 1923 Cable Address: AIRAMBROSE U. S. Export License No. 191

U. S. Domestic Airline Traffic for October

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MAILES **	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REVENUE TRAFFIC	AVAILABLE TON-MAILES	% AVAILABLE TON-MAILES	REVENUE PLANE-MAILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	311,724	143,030,000	213,674,000	66.94	712,360	546,062	3,112,050	17,992,218	29,380,913	61.34	5,077,397	5,017,616	99.29	
Branchiff	55,750	18,925,000	33,200,000	57.00	88,949	75,545	116,249	2,128,665	4,048,300	52.58	1,094,243	973,998	99.29	
Capital	114,780	34,303,000	68,951,000	49.75	95,748	195,531	764,706	4,333,013	8,653,151	50.07	1,913,878	1,870,216	98.08	
Caribbean	4,039	331,000	1,082,000	30.59	588	1,663	28,899	108,668	26.59	44,620	46,232	96.51		
C & S	29,255	10,726,000	18,831,000	56.96	47,212	40,799	65,902	1,188,361	2,195,670	54.12	685,970	680,308	99.13	
Colonial	17,151	4,497,000	7,603,000	59.15	8,616	7,384	10,361	467,394	990,383	47.19	359,617	360,338	99.44	
Continental	16,381	6,255,000	14,021,000	44.51	14,159	7,380	40,758	661,131	1,481,157	44.64	483,659	469,346	99.41	
Delta	46,693	17,177,000	32,646,000	52.62	67,614	65,627	194,068	1,978,220	4,591,141	47.09	1,091,273	1,096,090	99.22	
Eastern	194,259	81,711,000	150,153,000	54.82	381,347	297,216	753,060	10,034,161	21,418,900	46.85	4,436,446	4,570,792	96.70	
Hawaiian	20,302	2,635,000	5,095,000	51.72	4,597	9,846	58,586	299,461	585,669	51.31	237,165	216,138	99.13	
Inland*	7,366	2,693,000	4,536,000	59.37	8,284	5,106	9,794	281,682	465,410	60.52	233,443	239,940	97.22	
NCA	31,659	9,233,000	16,421,000	56.23	26,221	22,991	31,471	965,738	1,876,721	51.46	781,967	767,932	99.56	
National	24,448	13,207,000	29,286,000	45.10	34,794	31,347	128,099	1,557,814	3,998,191	38.96	851,478	861,304	98.76	
Northwest	25,820	4,946,000	10,556,000	46.85	7,203	9,551	25,167	487,690	1,062,230	45.91	336,480	346,896	97.97	
Northwest	72,406	43,601,000	80,485,000	54.17	215,162	152,191	420,798	4,980,946	10,313,417	48.30	1,866,615	1,794,985	97.91	
Trans Pac.	5,709	750,000	2,296,000	32.67	..	..	2,298	64,938	205,133	31.66	81,985	68,462	90.17	
TWA	128,619	86,207,000	128,322,000	67.18	676,082	470,559	1,267,784	10,698,126	16,353,097	65.42	4,066,180	3,978,925	99.07	
United	198,905	116,733,000	167,058,000	69.88	820,494	621,093	2,260,259	14,884,125	25,587,586	56.86	4,645,405	4,614,486	98.53	
Western*	36,246	13,232,000	25,094,000	52.73	45,711	37,580	30,396	1,376,442	2,695,986	51.06	634,800	567,690	99.50	
TOTALS	1,341,064	610,192,000	1,009,310,000	60.45	3,253,363	2,626,908	9,294,209	74,409,024	135,709,633	54.82	28,632,501	28,520,696	98.36	
* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.														
** Included air parcel post.														

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.

** Includes air parcel post.

U. S. International Airline Traffic for October

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	U. S. MAIL TON-MAILES *	FOREIGN MAIL TON-MAILES	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REV. TRAFFIC TON-MAILES	AVAILABLE TON-MAILES FLOWN	% AVAILABLE TON-MAILES	REVENUE PLANE-MAILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	7,635	5,069,000	9,386,000	54.01	9,658	3,519	696	104,982	715,564	1,217,691	58.75	190,897	181,497	100.00	
Amer. Overseas	10,810	18,212,000	25,937,000	62.94	106,808	42,365	711,734	...	2,310,621	3,756,522	61.51	668,073	668,156	96.23	
Branchiff	1,213	2,844,000	8,014,000	35.49	1,920	607	...	21,950	298,258	1,144,726	26.05	173,607	173,607	100.00	
C & S	1,517	1,953,000	7,609,000	25.67	1,965	474	...	34,369	241,539	911,136	26.45	184,928	185,534	99.67	
Colonial	904	713,000	2,476,000	28.80	688	106	...	805	76,656	363,284	21.20	56,262	58,346	96.43	
Eastern	1,048	1,090,000	3,132,000	34.80	6,694	...	...	31,625	154,276	415,977	37.09	66,560	64,480	100.00
National	4,607	1,299,000	2,732,000	47.55	1,260	...	25,557	...	160,155	385,087	41.59	54,793	50,406	99.32	
Northwest	2,901	5,669,000	10,796,000	52.70	152,656	16,668	7,979	406,986	1,204,898	1,941,798	62.05	487,770	486,851	99.97	
Panagra	8,065	8,592,000	17,795,000	48.28	24,608	23,800	154,423	...	1,153,586	2,377,697	48.52	487,309	486,610	99.27	
FAA
Latin Amer.	48,326	42,329,000	85,673,000	49.41	215,475	58,189	1,561,544	200,433	6,346,798	12,927,920	49.11	2,407,790	2,251,471	99.01	
Atlantic	11,798	29,972,000	49,351,000	60.73	216,362	72,809	672,793	...	4,251,877	7,630,591	55.36	1,378,596	1,440,022	94.56	
Pacific	6,601	10,870,000	36,744,000	51.36	436,693	51,770	514,061	...	2,916,824	5,739,408	50.62	1,147,406	1,146,959	99.92	
Alaska	3,056	3,032,000	6,179,000	49.07	35,021	...	371,259	...	716,775	1,323,447	54.16	205,760	214,690	95.84	
TWA	9,923	27,235,000	45,595,000	59.71	231,105	118,908	470,179	...	3,821,991	6,910,676	59.62	1,343,154	1,345,746	97.13	
United	1,835	4,404,000	8,686,000	50.70	51,534	...	37,972	...	557,304	931,056	59.86	201,600	211,200	95.45	
TOTALS	120,236	171,303,000	323,102,000	53.01	1,492,467	389,215	4,048,995	801,150	24,929,122	47,529,516	52.45	9,054,505	8,965,738	97.93	
	* Includes air parcel post.														
NOTES:	Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.														

* Includes air parcel post.

NOTE: Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Branchiff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient; and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. International Airline Revenues & Expenses, July-Sept.

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	U. S. MAIL REVENUES	FOREIGN MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUNDS & INDEMNITY EXPENSES	NET OPERATING INCOME
American	\$ 1,022,866	\$ 892,052	\$ 21,770	\$ 20,993	\$...	\$ 49,420	\$ 13,671	\$...	\$ 890,921	\$ 437,361	\$ 453,561	\$ 131,945
Amer. Overseas	7,156,826	5,294,585	1,023,497	338,721	385,204	...	55,945	28,131	6,185,419	3,122,304	3,063,115	971,407
Branchiff	1,115,186	651,189	409,907	6,142	...	28,522	15,857	...	1,103,800	466,477	607,324	11,386
C & S	994,858	564,194	383,857	2,580	...	23,180	20,856	...	934,191	466,776	466,414	60,667
Colonial	289,781	202,717	81,287	765	...	1,084	314	...	363,843	163,512	200,331	-74,062
Eastern	225,941	196,075	11,971	...	...	14,961	2,934	...	236,821	114,857	121,965	-10,880
National	426,172	353,680	30,999	...	24,997	...	6,986	9,909	422,088	181,891	240,197	4,084
Northwest	3,474,707	1,540,745	1,419,489	89,735	7,997	...	18,093	...	2,385,722	1,218,786	1,366,936	1,088,985
Panagra	3,889,535	2,436,898	976,805	211,979	133,595	...	104,548	3,449	3,701,573	1,776,459	1,925,115	187,962
FAA	...	...	...	...	...	...	...	...	...	...	...	...
Latin Amer.	15,854,299	11,062,849	2,421,886	473,762	1,425,199	...	349,586	44,027	14,879,500	5,895,464	8,984,036	974,759
Atlantic	15,406,073	9,400,553	4,219,422	540,419	908,746	...	230,502	50,363	14,197,968	7,302,951	6,895,017	1,208,104
Pacific	6,472,736	4,696,430	2,664,069	250,999	730,988	...	81,453	7,972	7,673,628	3,790,964	3,882,663	799,019
Alaska	1,340,587	888,940	148,140	...	259,404	...	4,554	38,962	1,250,780	575,249	675,531	89,807
TWA	12,731,929	8,584,563	2,323,981	745,071	642,295	...	212,636	97,303	10,146,384	5,008,747	5,139,637	2,503,545
United	1,375,054	1,174,839	104,776	...	45,692	...	10,211	619	963,270	538,524	424,745	411,785
TOTALS	77,776,510	47,951,309	16,243,156	2,680,286	4,564,027	499,028	1,128,346	280,635	65,337,908	30,691,322	34,446,587	8,438,603

* Represents company's estimate of amount which should be received in accordance with the terms of the Civil Aeronautics Act when permanent rates are established. Estimate exceeds temporary rates in effect by: Latin American Div. \$1,311,420; Atlantic Div. \$2,546,809; Pacific Div. \$65,804; Alaska Div. -\$830,368.

AUTHORITIES AGREE: For the most efficient airport snow removal program -



- Know the weather
- Use the best equipment
- Have trained crews

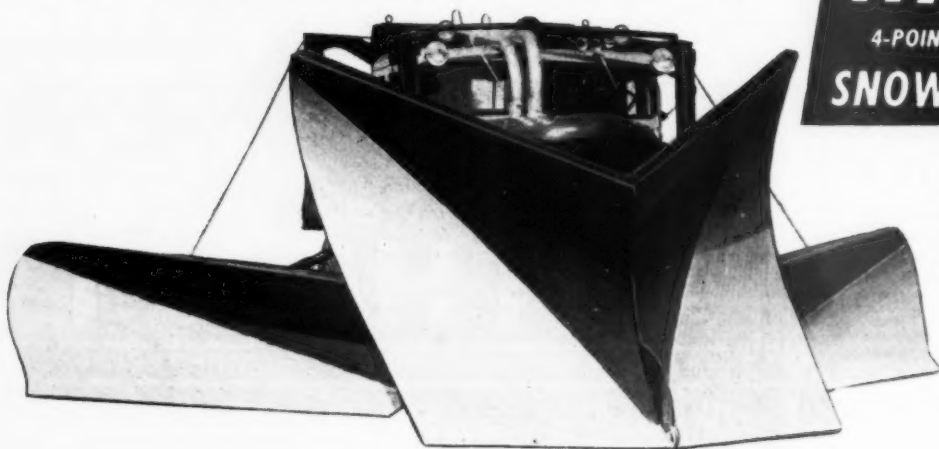
By following these three basic principles, leading airports in the United States and Canada are now keeping runways and facilities operating through severest winter weather. If snow, sleet and ice still cripple your airport, write us for authoritative information and suggestions.

EXPERIENCE PROVES: the most efficient snow removal equipment is --

WALTER

4-POINT POSITIVE DRIVE

SNOW FIGHTERS



250 hp. Walter Snow Fighter with V-Plow and 2 side wings, hydraulically operated. Total clearing width 28 ft., at 20-30 mph.

The outstanding records for continuous winter operation being set at airports today, are spearheaded by big, fast, powerful, specially-designed Walter Snow Fighters. These giant units incorporate the exclusive Four-Point Positive Drive which provides 100% traction on snow and ice. This permits clearing at speeds of 25 to 30 mph., with plows throwing snow far to the side and wings cutting down windrows to safe levels.

With the great speed and tremendous volume removed on each run, Walter Snow Fighters keep directional runways open thruout any

storm for emergency operation—get all runways open within few hours after the storm stops. You also clear strips, aprons and approach roads with equal speed—open drifted areas—spread sand and chemicals—scrape hard-packed snows and ice.

Have our airport specialist call with the facts on Walter Snow Fighters and most effective snow clearing techniques. Literature available on request.

WALTER MOTOR TRUCK CO.

1001-19 IRVING AVE., RIDGEWOOD 27, QUEENS, L. I., N. Y.

AIRPORTS

Aviation Activities Center:

West Virginia Sky-Tel Makes Highway-Skyway Crossroads

By KEITH SAUNDERS

The kind of airport a lot of operators are dreaming about having when private flying becomes a lot more commonplace is in existence today, at Parkersburg, W. Va.

Stewart Airport is the name of the field, and J. Wayde Stewart, the owner, has combined unusual facilities, exceptional services and smart merchandising ideas to provide a service center for the private pilot that has few equals among privately-owned fields.

Located just three miles from the center of Parkersburg, between the Ohio River and U. S. Route 21, Stewart Airport caters to flying people primarily but also draws business from townspeople and highway travelers. Its advertising slogan: "Where the Skyways Meet the Highways," aptly describes its situation in this respect.

Many Services

Services at the field run from private flying, flight instruction, and plane rentals, to aircraft maintenance service, distribution of aircraft and parts, and, most notably, a modern Sky-Tel that provides comfortable overnight accommodations both for pilots and motorists.

This Sky-Tel, originally built for wartime use in the Civilian Pilot Training and War Training Service, was opened to the public early last fall after being remodeled and decorated at a cost of \$35,000. It has 15 rooms, each with private bath with tile shower and lavatory. They rent for \$4.50 single, \$6.00 double.

There are two lobbies, a specially designed one with mirrored walls which pilots enter from a patio facing the tie-down area of the airport, the other opening off an auto parking lot. A huge fireplace, writing desks, reading tables, and other features contribute to a home-like atmosphere. If transient pilots want a car, the Hertz-Rent-a-Car system is available. In addition, there is taxi service to town every half-hour.

In the brick administration building is a modern lunch room with outside

observation deck overlooking the airport. The lunch room caters to breakfast flights, luncheon flights, overnight flights, general airport traffic and the public.

Other activities housed in the "ad" building include a pilots' lounge, operations office, manager's office, service de-

partment office and waiting room, accessories sales counter, ground school room, overhaul and service shops, and storage hangars. Also on the field are private T-hangars.

Service Available

Aircraft service available to pilots include wash and polish jobs, 25-hour checks, inspection and adjustment of powerplants and other aircraft and engine repair service, all of which the plane owner is welcome to inspect.

The service department carries a large stock of parts for Continental and other common-used engines, and Stewart Aviation Company holds the Piper-Stinson distributorship for West



MODERN administration building at Stewart Airport, Parkersburg, W. Va., and the main hangar adjoining it. An upper floor lunch room and observation deck overlooking the field are a feature of the building. The operations office, also facing the field, is on the first floor.



ATTRACTIVE hotel at Stewart Airport, as it appears when approached from the highway which passes it. Called the Sky-Tel, it caters alike to pilots who land and tie down their planes on the far side of the structure and to transient motorists who enter from the highway side.

AIRPORTS

Virginia and parts of Ohio.

Nearby Recreations

Transient air travelers with time to kill during weather delays, repairs or for other reasons, will find a drive-in theater and golf driving range adjacent to the airport, and swimming, boating, fishing and other sports in season within easy access.

The Parkersburg Pilots Association, one of the most active private flying groups in the country, has a clubhouse on the field and holds regular meetings and other activities, including speeches by well-known aviation figures, hangar dances, flying contests and Air Scouts meetings. Its best known activity is its annual Flight Breakfast and Air Fair, which attracted 225 private planes and some 500 to 800 interested bystanders last September.

Other activities on the field include a Civil Air Patrol unit, complete with Link trainer instruction, a Naval Reserve unit, a locally sponsored Air Age program and a plane model club.

Supervising this busy airport is Frank Pittenger, who is a CAA flight examiner and holds private pilot, commercial pilot and instrument ratings. He is assisted by a Sky-Tel manager, superintendent of maintenance, chief pilot, secretary, chef and numerous instructors, mechanics and miscellaneous employees.

The private pilot flying east from Cincinnati, southwest from Pittsburgh or west from Washington will do well to pay Stewart Airport a visit. It will open his eyes.

Airport Notes

Fighter type aircraft, regardless of ownership and whether or not they are modified or converted, are banned from Newark Airport in a Notice to Airmen issued last fortnight by the Port of New York Authority. Exempted from the regulation, however, are F-47, AT-6 and B-26 planes of the National Guard of the State of New Jersey, which has used the airport for a number of years under terms of an old lease between the State of New Jersey and the City of Newark.

The main terminal building at Baltimore's Friendship International Airport is better than 60% completed and should be ready for occupancy by late spring . . . Lawton, Okla., expects to have its new municipal airport ready for use soon after the first of the year, although the administration building may not be completed before next summer.

The Civil Aeronautics Administration has objected to a proposed site for an airfreight and feederline terminal in Northeast Tacoma because it would be in the approach zone to Seattle-Tacoma International Airport . . . Construction of 10 individual all-steel hangars has been completed at Frederick (Md.) Municipal Airport, and there already is a demand for more. The old WPA-

How Brightness Control of Runway Lights Can Save Money

One way that brightness control can cut the expense of runway lighting at airports is offered by Robert M. Isenberg, airport manager at Greater Cincinnati Airport, Covington, Ky.

Isenberg made a detailed analysis of the relation between brightness control of high intensity bulbs on one runway and rated life of the bulbs. His study gave him the answer to most economical usage of

his lights, while meeting the requirements of safe operations.

He found that the theoretical yearly bulb cost for the one runway ranged from \$5,346 with brightness control on 100% to only \$43.39 at 1% brightness. This is based on a 75-hour bulb life at 100% brightness and 9,900 hours at 1% brightness.

Isenberg requested the control tower operators to use brightness control according to the following ceiling and visibility chart:

Chart for Intensity Control

Ceiling	Visibility	Intensity
Unlimited	10 miles and over	1%
Over 1,000 ft.	5 miles	1%
1,000 ft.	2 miles	3%
700 ft.	1 mile	10%
500 ft.	1/2 mile	30%
300 ft.	1/4 mile	100%
Not over 100 ft.	1/8 mile	100%

Life of High Intensity Bulbs

Brightness Control	Rated Life
100%	75 hours
30%	450 hours
10%	1,575 hours
3%	4,950 hours
1%	9,900 hours

Probable Usage One Year

Brightness Control	Hours Operated
1%	670 hours
3%	670 hours
10%	670 hours
30%	420 hours
100%	268 hours
Total Yearly Operation	2,698 hours

Yearly Bulb Cost One Runway

Brightness Control	Cost
100%	\$5,346.00
30%	991.00
10%	252.00
3%	87.61
1%	43.39

built Mt. Plymouth Airport at Orlando, Fla., is being put back into usable condition.

Frank C. Hoffman, Jr., a former pilot in the R.A.F. Ferry Command and a former flight school operator at Staten Island Airport, has been engaged as operator and manager of Jacksonville, Ill., Municipal Airport . . . Thomas H. Green, former Massachusetts Civil Service Commissioner, has been named to fill the post of secretary of the State Airport Management Board, succeeding Frank J. Zeo, who served as secretary to the board without pay for 16 months.

Operators of the Wing Room and Cocktail Lounge in the domestic terminal at San Francisco Airport now offer their customers free parking. They pay the parking lot concessionaire the same fee as is paid by any other parker . . . San Francisco is getting ready to let a concession for the operation of a U-Drive-It service at Municipal Airport. City will get a basic payment of \$150 a month or a percentage of gross receipts, whichever is the higher.

Houston has been given assurances of CAA assistance in building a second major air terminal to cost \$6,000,000 or more. As the city's current airport funds are earmarked for development of the present Municipal Airport, a bond issue will have to be submitted to the voters to finance the new project. A survey of potential sites is to be started at once.

National Aircraft Maintenance Corp.

has been granted the Shell Oil franchise for sale of all Shell aviation products at Newark Airport. . . . Construction on a new hangar and office building for use by Pioneer Air Lines has started at Love Field, Dallas. City of Dallas is paying for the structures, which will cost more than \$250,000.

U. S. Chamber Group Urges Airport Aid Limitation

A resolution urging that Federal aid to airports be limited to a system of airports used primarily for traffic in interstate commerce was adopted by the Transportation and Communication Department Committee of the Chamber of Commerce of the United States at its December meeting.

Other resolutions pertaining to airports recommended that airports should be placed on a self-sustaining basis as soon as possible by establishing charges proportionate to their use by military forces, commercial carriers and private owners; airport buildings should be eligible for Federal aid, together with other improvements, but facilities used entirely by private operators, such as hangars, should not be built at public expense; and states should have the right to require channeling of Federal airport funds through a state agency.

CAA Ruling Increases Aid Shares for Certain States

The Civil Aeronautics Administration has a new ruling on Federal-aid airport expenditures whereby the government will provide 75% of allowable project costs on airports in Alaska and the Virgin Islands and varying percentages up to 62.50% for 13 states containing unappropriated and unreserved public lands and non-taxable Indian lands.

The percentages for each of the 13 states in this special category have been announced as follows: Arizona, 60.83%; California, 54.14%; Colorado, 53.31%; Idaho, 55.61%; Montana, 53.53%; Nevada, 62.50%; New Mexico, 56.86%; Oklahoma, 51.39%; Oregon, 55.90%; South Dakota, 53.09%; Utah, 62.17%; Washington, 51.78%, and Wyoming, 57.49%.

CAA Airport Aid Offers

For the four-week period ended December 9, Federal-aid airport grants totaling \$1,386,571 were offered to 37 communities by the Civil Aeronautics Administration, as follows, with classes in parentheses:

Arizona: Douglas (Bisbee-Douglas International) (2), \$6,906; Phoenix (Sky Harbor Municipal) (5), \$858,011.

Arkansas: Batesville Mun. (2), \$6,555.
California: Hanford Mun. (1), \$36,018; Santa Ana (Orange County Airport) (4), \$13,297.

Colorado: Greeley Mun. (3), \$17,700; Trinidad Airport (3), \$13,500.

Florida: Cedar Key (Lewis City Mun.) (1), \$15,508.

Georgia: Atlanta Mun. (3), \$393,400.

Idaho: Bonners Ferry (Boundary Co. Airport) (1), \$4,440; Gooding Mun. (3), \$8,111; Pocatello Mun. (5), \$50,999.

Kansas: Emporia Mun. (3), \$20,000; Independence Mun. (4), \$6,900; Topeka (Phillip Billard Mun.) (4), \$25,500.

Louisiana: Harding Field, Baton Rouge (5), \$22,017.

Maine: Fort Kent Mun. (1), \$18,500.

Maryland: Frederick Mun. (3), \$20,215.

Michigan: Grand Rapids (Kent Co. Airport) (5), \$28,000; Jackson (Reynolds Mun.) (3), \$33,850.

Minnesota: Crookston Mun. (2), \$18,000.

Missouri: Kennett Mun. (2), \$40,278.

Montana: Billings Mun. (4), \$9,900.

New Hampshire: Concord Mun. (3), \$12,716.

New Mexico: Ruidose (Cree Meadows Airport) (2), \$28,978.

New York: Rochester Airport (4), \$400,000.

Ohio: Cincinnati (Blue Ash Airport) (5), \$100,000; Columbus Mun. (5), \$35,000.

Oklahoma: Shawnee Mun. (3), \$1,800.

Oregon: Portland (8), \$66,806.

Pennsylvania: Towanda Mun. (1), \$12,350.

South Carolina: Myrtle Beach Mun. (4), \$7,500.

South Dakota: Rapid City Mun. (3), \$63,559.

Tennessee: Waverly (Humphreys Co. Airport) (2), \$12,000.

Texas: San Angelo Mun. (4), \$25,414.

Vermont: Burlington Mun. (4), \$6,000.

Virgin Islands: Benedict Field, St. Croix (3), \$69,758.

These boosted the Federal-aid grant offers through December 9 to 1,047 and the Federal funds involved to \$94,126,950.

Iowa Sponsors Development Of Low-Cost Strip Airports

The Iowa Aeronautics Commission is out to prove that a community needn't spend a lot of money in order to have an airport.

Exhibit A in the state's case is the town of Osceola (pop. 4,000), where a single-strip airport has been built at a cost to the state of \$1,050 and a cost to the community of a lot of volunteer labor.

Osceola is a county seat located south of Des Moines, and is one of 21 county seats in Iowa that were without landing facilities of any kind until Norbert Locke, the state's hustling aeronautics director, decided something should be done to correct this situation.

The difficulty in virtually every instance, Locke quickly discovered, was simply a lack of funds. Many small communities just didn't have the \$20,000 to \$50,000 they thought was needed in order to build even a minimum airport. So the Aeronautics Commission decided to sponsor the construction of five inexpensive single-strip airports at five county seat towns to show how it could be done. The strip at Osceola is the first of these to be completed.



TWO LIGHTPLANES parked in foreground are the first to base at the recently completed flight strip at Osceola, Iowa. Plan is to have hangars, fueling and other facilities available by next summer. Strip is three miles from the town and is readily accessible via the highway (note auto to the left) which runs parallel to the field.

The Osceola strip is conveniently located alongside State Highway 69 about a mile and a half north of the town. Only a sodded ditch separates the landing field from the concrete highway. The strip, 2,200 feet long and 200 feet wide, has been graded and is to be seeded next spring.

Town Leases Land

One thing that kept the cost of the field down is the fact that instead of having to purchase the land the town leases it for a fee of \$250 a year. Townspeople and neighboring farmers did most of the scraping, grading and rolling that was necessary to convert the farmland into an adequate landing area. There are only two small structures on the field at present, one being a shelter house with a pay telephone installed, but aircraft owners will be allowed to build individual hangars in one corner of the field.

Low Maintenance

Maintenance costs will be negligible, consisting largely of mowing of the grass and upkeep of the six runway markers and the two small buildings. The Aeronautics Commission will make periodic inspections and advise the town as to maintenance needs.

While the Osceola strip at present is nothing more than a place on which lightplanes may land and take-off, Locke is confident that by spring or summer there will be a fixed-base operator on the field, offering fuel, storage and other facilities and services.

"We think we have our money's worth in this strip," he said. "True, it is an experiment, but if we are wrong it hasn't cost us much to find out. If we are right, it has been a great bargain."

Expansion Program Gives Miami Airport New Rating

Miami's airport will be formally dedicated January 6 as a Class 6 intercontinental landing area, a recognition accorded it by the Civil Aeronautics Administration for the progress that has been made under its expansion and development program.

A. B. Curry, director of the Dade County Port Authority, said improvements now under way should raise the field to a Class 6 intercontinental express rating by the end of 1950.

Projected developments include: acquisition of the former Army Air Field and the Miami International Air Depot area, purchase of other additional land, enlargement of the present terminal building, installation of new lights, drainage and sewers.

PRETESTED IDEAS

Compass Swinging

OUT AT Curtiss Wright in Columbus they swing a good many compasses after aircraft have been passed through the overhaul shops and prior to release for flight. Recently Willis Mynatt, of the C-W hangar and ramp department, won a \$50 award for his suggestion to simplify compass swinging. The compass rose has a turntable for its center and one wheel of the airplane is always placed on the turntable while the other wheel moves around the rose.

Mynatt suggested that the azimuth



markings from the center of the rose be carried out through the area where the moving wheel passes during repositioning of the aircraft on the 30 headings.

A metal rod is used in the wheel axle

to align the wheel directly with the wheel marking. Exact final positioning is accomplished by the plank and block shown in use by Mynatt. Foreman Vernon Kellor watches.



Utility Unit

THIS IS the general utility piece of ramp equipment built up by Foreman Ralph Monaco of All American Airways' maintenance department. It consists of a single-cylinder gas engine driving a generator rated at 2,000 watts at 28.5 volts. The compact unit also contains two 12-volt aircraft batteries for use in starting engines.

In addition to its use for starting aircraft with either 12 or 24-volt electrical systems, the unit provides a simple method of charging batteries. In this application a reverse current cut-out provides for cutting the load into or out of the circuit.

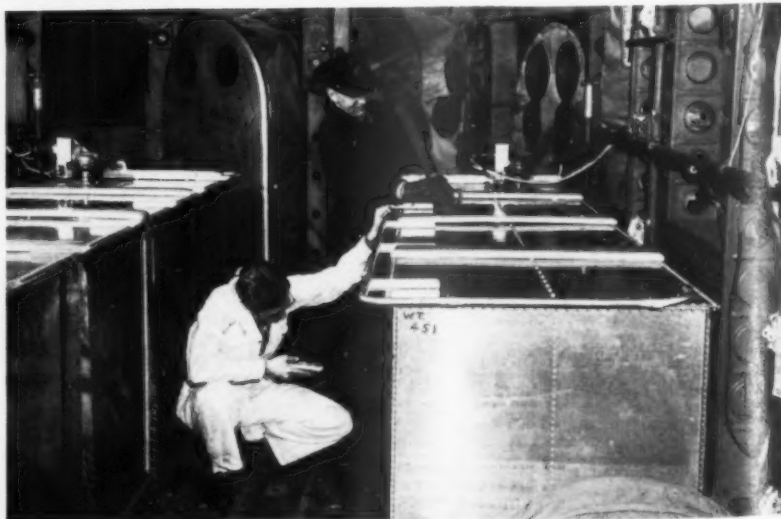
Two adjustable sealed-beam headlights are mounted on top of the portable ground unit and can be positioned in a wide range of angles. Another pair of headlights are provided on extension cords as general utility lights.

Water Ballast

THIS PHOTO shows the four 720 gallon aluminum water tanks used in the Fairchild C-119 to replace heavy shot bags as ballast during flight testing of the airplane. The four tanks are connected in pairs and two surplus Rolls-Royce Merlin pumps are mounted between the pairs to transfer ballast as dictated by the test condition. The pumps handle 70 gallons per minute.

Electrically-operated dump valves are used to release the ballast through a 10-inch opening in the cargo hold or a hand-operated crank can be used for dump-valve operation in the event of a power failure.

This system, reduces the maximum time for dumping ballast to 75 seconds, permits full shifting of ballast in flight in ten minutes and allows the load to be subjected to as much as a 90° bank.



Piper's 1950 Production Features Three 'Pacer' Models

By BURDETTE S. WRIGHT, Jr.

Piper Aircraft Corp. has completed its re-tooling program for the 1950 line of airplanes and is beginning production on the successor to the Clipper, the four-place plane that was introduced on a sick market for lightplanes and proceeded to the top of the list for total number sold in 1949. Reason, of course, is that it was a fine little plane with a price tag under \$3,000.

This year Piper will offer three versions of the same plane, replacing on the market the Cruiser, the Super Cruiser and the Vagabond. The company anticipates the same success in market acceptance.

The three versions are designated "Piper Pacers," due to Pan American's objection to continued use of the name "Clipper" on the ground that it tended to cause confusion in the public mind as to what a Clipper was.

First of the Pacers is the "Piper Pacer 115," the lower priced version which nevertheless has several improvements over last year's Clipper. Fuel capacity has been increased from 30 to 36 gallons, the tail surface has been increased about 20% and the elevators are balanced for more stability and lighter control loads.

The Pacer has new wheel controls and the Hydrasorb landing gear has been incorporated as standard equipment. It is powered by the 108-hp Lycoming 0-235-C1 and will cruise at 112 mph, with a top speed of 125.

A more expensive version, the "Piper

Pacer 125," adds 17 hp and brings the cruising speed up to 125 and the top speed to 135, using the Lycoming 0-290-D. It has flaps, adding considerably to its versatility in getting into and out of small fields.

The third version, the "Piper Pacer 135," has the same engine, but uses the Sensenich constant-speed propeller and will cruise at 135. The plane itself is the same as the 125, with added instrumentation. This model should sell for about \$3,600, although there has been no official announcement yet on the price of any of the three models.

Factory officials say there will be at



PIPER PACER'S interior will be more finished than that of its predecessors, with new control wheels and space on the instrument panel for any currently available navigation aids.

least one production model of the Pacer at the All American Air Maneuvers at Miami this month, and that during February, when Piper dealers meet in Lock Haven for their annual convention, there will be 50 Pacers ready to fly away to all points in the country.

Agricultural Model

Still available in 1950 is the Piper Cub, which has changed very little for the 1950 market. During the past year, however, Piper developed a liaison type plane for the military, derived from the PA-11 Cub. For the civilian market, as an agricultural plane primarily, this has been designated the PA-18, or the "Super Cub." It can be had with two different engines—the 90-hp Continental (Super Cub 95) or the 115-hp Lycoming (Super Cub 105).

The 105 has flaps, which makes it possibly the nearest thing in commercial production today to a biplane-type performer. There is no doubt that it will take off and land in a remarkably short space. With flaps partially down, it is said to be able to maintain level flight at 25 mph.

Piper officials say that further development work on a plane specifically for agricultural usage will go on when results of the Texas A & M project, now experimenting to arrive at the requirements for such a plane, are made available to manufacturers.

Brigadier Modification

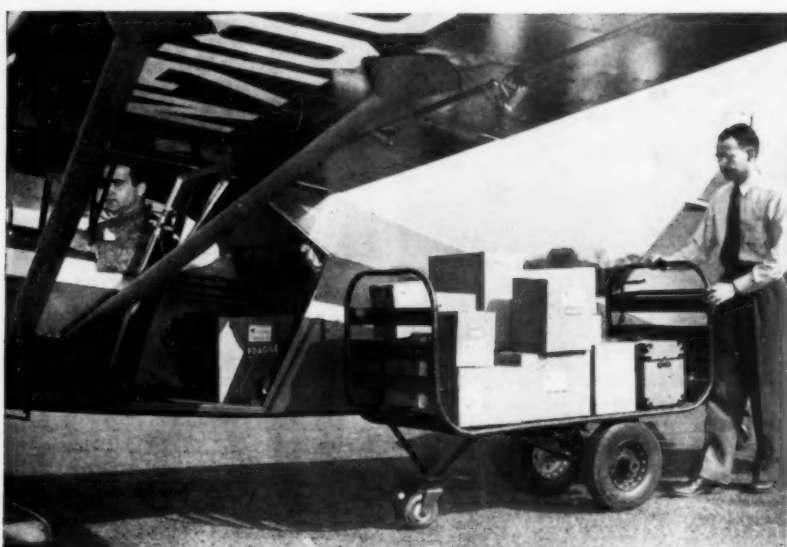
Also in the mill at Piper, and slated to fly in February, is the modified Bauman Brigadier. When purchased this plane was a middle-wing pusher type powered by two 125-hp Continental engines. When it flies again it will be a high wing tractor type, with two 190-hp Lycomings. These and other modifications now in

Specifications & Performance Data for Piper 1950 Production Models

SPECIFICATION DATA	Pacer 115	Pacer 125	Pacer 135	Super Cub 95	Super Cub 105
Engine	Lyc. 0-235-C1	Lyc. 0-290-D	Lyc. 0-290-D	Cont. C-90	Lyc. 108
HP and RPM	108 at 2600	125 at 2600	125 at 2600	90 at 2745	108 at 2600
Gross Wgt. (lbs.)	1650	1800	1800	1500	1500
Empty Wgt. (lbs.)	900	980	1000	790	825
Useful Load (lbs.)	750	820	800	710	675
Wing Span (ft.)	29.3	29.3	29.3	35.3	35.3
Wing Area (sq. ft.)	147.5	147.5	147.5	178.5	178.5
Wing Chord (in.)	63	63	63	63	63
Length (ft.)	20.4	20.4	20.4	22.4	22.4
Height (in.)	74.5	74.5	74.5	6.7	6.7
Prop Diameter (in.)	74	74	74	74	74
Power Loading (lbs./hp)	15.2	14.4	14.4	16.6	13.9
Wing Loading (lbs./sq. ft.)	11.2	12.2	12.2	8.4	8.4
Baggage Capacity (lbs.)	50.0	50.0	50.0	50	50
Fuel Capacity (gal.)	36	36	36	18	18
PERFORMANCE DATA					
Top Speed (mph)	125	135	140	110	115
Cruising Speed (mph) Sea Level	112	125	134	100	105
Stalling Speed (mph)	50	With Flaps 48	With Flaps 48	44	With Flaps 38
Best Rate of Climb Speed (mph)	75	84	84	71	68
Rate of Climb (ft./min.)	600	810	850	624	780
Cruising Range (miles)	580	545	580	360	270
Service Ceiling (ft.)	11,000	14,250	.....	13,500	15,750
Absolute Ceiling (ft.)	13,500	16,250	.....	16,000	18,000
Fuel Consumption (gal./hr.)	7	7.7	7.7	5	7
Landing Roll (ft.)	.....	.....	.....	385	385



FLAPS ARE STANDARD on two versions of the Pacer. The plane is now in production and will probably be available in February.



USEFUL LOAD for the Pacers is given as from 750 to 820 lbs. All the bulky packages shown here can actually be stowed in the plane.

progress will render it hardly recognizable as the Brigadier.

Piper has high hopes that this plane will lead them into a new field in manufacturing. For one thing, it would be an all-metal plane, which would require considerable additions to shop equipment. Piper's aim is to market this twin-engine, six passenger transport at \$20,000 or less. Operators all over the world have been consulted on design and the net result appears to be a plane that can carry six passengers into a small field and, in a matter of an hour or so, be able to carry freight out, with all seats removed. In short, it should be the ideal plane for any operation involving flights into places inaccessible to regular transport planes. The plane, at the present time, is expected to cruise at 160 mph or better.

French Jet Lightplane May Fly at Miami Air Maneuvers

Pierre Mauboussin, French manufacturer of the Fouga C.M.-8 R Cyclone, the first jet-propelled lightplane, has been invited to demonstrate the plane at the 18th annual All American Maneuvers in Miami, January 13-15.

The Cyclone is a single-place personal plane powered by a 200-pound-thrust turbo-jet unit mounted on top of the fuselage behind the pilot's compartment. Wing span is 40 feet and length a little over 20 feet. The tail is of the butterfly V-shape design, similar to the Beech Bonanza tail.

Indicated performance data: top speed, 160 miles per hour at 10,000 feet; ceiling, over 30,000 feet; rate of climb at take-off, 780 feet per minute; range, 150 miles.

Fixed-Base Briefs

The entire facilities of the **Keister Flying Service** at Shoshone County Airport, Kellogg, Idaho, have been taken over by **Aviation Industries, Inc.** Included in the deal was a VA-approved flight school and a Cessna dealership. **Clayton Henley** heads the operation. . . . The **Fli-Rite School of Aviation, Inc.**, of Swanton, Vt., has signed a five-year lease as base operator of the **Plattsburgh, N. Y. Airport**.

Vandalia (Ill.) Flying Service has reorganized, with **Leslie Ward** as president and treasurer. **George Gibbons**, first vice president, will manage the airport, with the assistance of **Ray Williams**, 2d v.p., as farm manager. . . . **Frank J. Havelka**, since 1946 manager of the **Schuyler (Nebr.) airport**, has joined **Great Plains Airways** of Columbus, Nebr., as manager of flight operations.

Allan B. Heinsohn, formerly president and general manager of **Cousins Air, Inc.**, **Staten Island Airport**, has been appointed manager of **Morristown, N. J. Municipal Airport**. . . . **Larry Conner**, a past president of the "International Brotherhood of Cow Pasture Pilots," is now manager of the **Casper-Wardwell (Wyo.) Airport**.

Ray Grimes of Greenfield was elected president of the **Indiana Aviation Trades Association** to succeed **Nick Jankovich** of Gary. Other 1950 officers are: **Norman Orloff**, Terre Haute, vice president; and **Dale Mason**, Indianapolis, secretary-treasurer. . . . The **Indiana Aeronautics Commission** has equipped its plane with Goodyear crosswind landing gear and will take it on a statewide demonstration tour.

George Martin has taken over the **Robinson Flying Service** at **Sikeston (Mo.) Airport**. Martin formerly was with **La-Mar Flying Service** at the same field. **Don Robinson** has moved from Sikeston to Kennett.

Cuts Upkeep Cost:

Executive Plane Rental Pool
Makes Profit for All Parties

By JAMES J. HAGGERTY, JR.

If you happen to be a corporation executive who would like to use a plane in business but who feels that it would not be used enough to justify the expenditure, there's a Guy in Ambler, Pa., who has an answer to your problem.

The Guy is T. Guy Miller, president of Wings, Inc., Beechcraft distributor for the Philadelphia area, who has evolved a plan for providing corporations with aircraft for business uses by renting airplanes from an owners' pool.

"Here's how it works," says Miller, a dapper, fast-talking chap with a great enthusiasm for anything connected with aviation. "A company needs, say, 100 hours of air time in a year. Naturally, it wouldn't pay to buy a plane for that amount of time. So I sell them 100 hours. I provide them with a plane, fuel and a pilot whenever they want it from our pool."

Planes Privately Owned

The pool at Wings Field consists of two D-18 Twin-Beeches, one Twin-Cessna and six Beech Bonanzas. All of the planes, except one of the Bonanzas, are privately owned. The owners put their planes in the pool, allow Miller to lease them at will, and he in return pays them \$15 for each hour they are in use. Thus they are able to reduce the yearly cost of their own flying.

Miller rents the planes at a rate of \$30 per hour, obviously an economical rate for the company when several executives use the same plane. Further, the company saves the 15% transportation tax it would pay for scheduled air travel. Miller, after paying the plane owner, gets \$15 an hour. After deducting the cost of the pilot (about \$4 an hour), advertising and other expenses incidental to the service, Wings, Inc., makes about \$5 an hour on the deal. Wings, Inc., handled \$30,000 worth of rental business in 1948 and sold \$24,000 worth in the first ten months of 1949.

If one of the pool owners needs a plane while his own is out on a rental, Miller provides another from the pool, charging the pool owner only half (\$15) the regular rate, so that the owner breaks even.

Everyone Benefits

Thus you have a peculiar arrangement whereby all three parties to the agreement profit: the corporation saves expensive executives' time and travel money; the owner reduces the yearly cost of operating his own plane; and Miller makes a profit.

There is another advantage to Wings, Inc. The company which at first buys a 100 hours of flight time later finds itself using the plane more and more as the executives get indoctrinated in the advantages of air travel. Eventually they are using the plane often enough to justify the purchase of a company plane—so Miller sells them one. Every company but one which has bought rental time from Wings, Inc., has ended up with a plane of its own.

The big thing about his plan, says Miller, is that he's selling aviation painlessly. The main problem in private flying, he states, is not so much "keep 'em flying" as "get 'em flying"—once they start they will keep it up.

Pick-up Proposal

Miller is always turning over in his head new ideas to promote the use of the airplane, and he has another one he is now trying to sell the scheduled airlines in the Philadelphia area. It concerns an aerial pick-up service, operated by light planes of the Bonanza type.

Miller points out that Philadelphia is the air terminal for a lot of suburban towns. In some cases it takes so long to get to Philadelphia from these outlying suburbs that potential air passengers decide to take surface transportation.

In some cases, the small towns have feeder airlines, but the schedules are such that the passenger could be several hours on his way by surface transportation before he could even reach the Philadelphia terminal.

Would Connect Airlines

Miller would operate a fleet of light planes, which would hop from one to another of these suburbs picking up airline passengers and dropping them at the Philadelphia terminal, for connections to their ultimate destinations.

He would work on a schedule basis, so that the pick-up passenger would arrive at Philadelphia just in time to board his plane. The cost would be more than surface transportation, but well worth it, Miller says, and he thinks it would have plenty of takers.

At first he would use Bonanzas, but, as they became available, he would switch to planes that could carry seven or eight passengers, such as the Beech Model 50 (Twin-Bonanza) and the Aero Commander, thus lowering the cost. The Philadelphia office of Transcontinental and Western Air is interested in his proposal and has passed it on to higher authority for decision.

Wings, Inc., is now in its 20th year of operation at Ambler. The company owns the entire field, with its buildings and hangars. Wings recently signed a five-year lease for 62,000 sq. feet of hangar space at Philadelphia's International (Southwest) Airport, where it operates an auxiliary base. Wings will have a new operations office for executive aircraft, to start operations April 15. The company handles 64 planes at Wings Field in Ambler and another 24 at Southwest.



WINGS FIELD, Ambler, Pa. The building at the right, with the tennis court and swimming pool, is Philadelphia's Aviation Country Club.

CLASSIFIED ADVERTISING

Undisplayed Advertising: \$1.00 per line, minimum charge \$4.00. Cash with order. Estimate 30 capital letters and spaces per line; 40 small lower-case letters and spaces per line. Add two lines if Box Number is included in lieu of advertiser's name and address.

Displayed Advertising: \$10.00 per inch for less than 15 inches in one issue or in any 12-month period. For more than 15 inches, \$8.50 per inch; more than 30 inches, \$8.00; more than 60 inches, \$7.50; more than 90 inches, \$7.00; more than 120 inches, \$6.50. Space units up to full pages accepted in this section for classified-type advertising.

Forms close 20 days preceding publication date. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Ave., N. W., Washington 5, D. C.

POSITIONS WANTED

Position Wanted—CAA Cert. Flight Radio-Navigator. 5000 hours North Atlantic. Now available assignment anywhere. Single. Refs. Box 682, American Aviation, 1025 Vermont Ave., N. W., Washington 5, D. C.

POSITION WANTED

Available for permanent position. Experienced executive for administration of Station Service, Air Mail and Cargo Activities and personnel. Accounting and Sales experience. Age 37, married. Salary open. Reply to Box 681, American Aviation, 1025 Vermont Ave., N. W., Washington 5, D. C.

GENEX

Dealers in Surplus—Unused
Engine and Propeller

PARTS — TOOLS

Phone: Hempstead 6746
P. O. Box 27 HOLLYWOOD, CALIF.

P-1 GENERATORS
E-5A GENERATORS
G-6 & G-6A STARTERS
SURVIVAL EQUIPMENT
LIFTING BAGS
HYDRAULIC JACKS
PORTABLE GROUND HEATERS
MAGNETOS
INSTRUMENTS
CARBURETORS
PROPELLERS
PROPELLER GOVERNORS
GRINDING WHEELS
HYDRAULIC PUMPS
FUEL BOOSTER PUMPS

Substantial quantities available.

KARL ORT
YORK, PA.

My 33rd year in Aviation

PAN AMERICAN AIRCRAFT SALES CO.

DEALERS AND EXPORTERS

P&W Engines and Parts

Large Inventory
Los Angeles 47

Send for Catalogue
1751 W. Century Blvd.
Phone: Plymouth 5-2277

Professional & Technical SERVICES

STEWART, SMITH & CO., INC.

Consultants

To Brokers on all Aviation Insurances
116 JOHN ST. NEW YORK 7, N. Y.

Aircraft Consulting Service

537 Standard Oil Bldg. Washington 1, D. C.
Engineering, Economic & Advisory
Services in Aircraft, Airline and Associated
Activities. Financial, Management
and Industrial Surveys.

Washington Services
H. E. Wehmler, Director. EX.-7203

WASHINGTON REPRESENTATIVE

AVAILABLE—12 years experience in sales
and service with Government Departments.

JAMES F. HARDY
Barr Bldg. Washington 6, D. C.

FREDERIC P. KIMBALL

Air Transport Economist

400 BENEDICT AVENUE

TARRYTOWN NEW YORK

Gotch and Crawford

Economic Analysis and Planning
for Airlines and Airports

Box 5574 WASHINGTON, D. C.
Oliver 6070 Overlook 1430

Listings in this section are available to
qualified organizations at the lowest
classified advertising rates in aviation
publishing. For further information and
rates, please write to:

AMERICAN AVIATION
1025 Vermont Ave., N. W.,
Washington 5, D. C.

C-47A ILLUSTRATED PARTS CATALOG \$15.00 each

(Californians add 45c sales tax)

Postpaid —
New Printing
(send check with order)

Allied Aircraft Company

5536 Satsuma Avenue
North Hollywood
California

Third 1950 Navion Model

Ryan Aeronautical Co. will add a third model to its 1950 line of Navions with a utility plane selling at \$9,485. Powered by the same 205 hp Continental engine, but with less elaborate instrumentation and furnishings than the de luxe 205 which has been the only model previously offered by Ryan, the utility craft's price will be \$1,500 less. Together with the Lycoming-powered Super 260, which was recently announced, the 1950 Navion price range will be \$9,485 to \$13,958.

Advertisers In This Issue

ADVERTISERS	Page
Aircraft Industries Association	28
Allison Division, General Motors Corp.	3rd Cover
Frank Ambrose Aviation Company	38
American Airlines, Inc.	19
Beech Aircraft Corporation	7
Bendix Aviation Corporation	
Bendix Radio Division	26, 27
Scintilla Magneto Division	17
Delta Air Lines	38
Dinkler Hotels, Inc.	37
Fairchild Engine & Airplane Corporation	2nd Cover
Flightex Fabrics, Inc.	38
The B. F. Goodrich Company	10
Goodyear Tire & Rubber Company	3
Hercules Powder Company	37
The Glenn L. Martin Company	9
Pacific Airmotive Corporation	32
Republic Aviation Corporation	5
The Texas Company	Back Cover
Walter Motor Truck Company	40

WINGS OF YESTERDAY

25 Years Ago

At a session of the House Aircraft Investigating Committee on January 25, 1925, it was revealed that in the five fiscal years, 1920-1924 inclusive, the War, Navy and Post Office Departments and the NACA had expended on aviation a total of \$433,383,287.

A contract of approximately \$1,000,000 for the construction of 40 CS1 three-purpose planes was awarded by the Naval Bureau of Aeronautics to The Glenn L. Martin Co. of Cleveland.

Appointment of a committee to study all phases of air navigation, particularly air mail, commercial flying and national defense, was announced January 8, 1925, by the American Engineering Council. Joseph W. Roe, professor of industrial engineering at New York University, was chairman.

A 10,000 mile flight throughout the United States was being planned by the Johnson Airplane & Supply Company as a means of stimulating interest in commercial aviation.

10 Years Ago

(In AMERICAN AVIATION)

According to Oswald Ryan, member of the Civil Aeronautics Authority, the number of workmen employed in the aircraft industry increased approximately 60,000 during 1939.

The Navy Department signed a contract with Consolidated Aircraft Corp., San Diego, for an undisclosed number of PBV-5 flying patrol boats amounting to \$29,000,000, the largest single aircraft order ever placed either by the Navy or the Army.

Voters of the City of Los Angeles approved a proposition authorizing the city to issue bonds not to exceed \$926,000 to improve municipally-owned Los Angeles Airport as a union terminal, an investment which qualified the port for Federal aid of approximately \$1,500,000. In addition, about \$1,000,000 in the form of hangars and other housing was to be spent by American, Pan American, TWA, United, Western Air Express and Wilmington-Catalina who had promised to use the field upon completion of improvements and designation of LA Airport as an airport of entry.

Chicago & Southern Air Lines was planning to move its general headquarters, office, main overhaul base and operations division from St. Louis to Memphis, Tenn., during the summer of 1940.

LETTERS

E-M Award Popular

To the Editor:

I have read with a great deal of interest the announcement of American Aviation's annual Engineering-Maintenance Award.

This is a fine idea and I congratulate you for having conceived it.

J. W. MILLER

President
Mid-Continent Airlines

I think it is a splendid move on your part to develop an Engineering-Maintenance Award.

It will be an incentive to everyone in all of our maintenance department and I certainly mean to have our people made aware of the material and psychological advantages of winning such a fine award.

ROBERT M. LOVE

President
All American Airways

You and American Aviation Publications are to be congratulated for your work on the annual Engineering-Maintenance Award. I know that it will be a tremendous satisfaction to some behind-the-scenes man to discover that his efforts have not been overlooked.

I may be a little prejudiced, but if it were left to me, I would nominate every mech in our company. Seriously, I do hope that we can nominate someone worthy of this fine award.

EARL F. SLICK

President
Slick Airways, Inc.

Your annual Engineering-Maintenance Award sounds like an excellent idea to me, and I feel certain that your action will tend to stimulate in our organization better professional handling on the part of people concerned with these aspects of Northwest Airlines' business.

My thanks for a very worthwhile idea, and one which I am sure will be beneficial for all of us.

K. R. FERGUSON

V.P.-Operations and Engineering
Northwest Airlines, Inc.
St. Paul, Minn.

Defense of Railroads

To the Editor:

In the editorial in the December 1, 1940 issue, you state that "impressionable folk who have been conditioned by anti-airline propaganda" have an idea that the airlines are heavily subsidized. You then proceed to point out that "subsidy," in the form of air mail pay, is relatively inconsequential. I can agree that the percentage of subsidy in each actual dollar of revenue is rather low, however it is not air mail pay alone that has gained for the airlines a reputation for being lavishly subsidized.

I will not presume to pass judgment on the fairness of the arrangement from a business aspect, but so long as practically every physical resource and facility utilized by the airlines is paid for by the Government they will deserve to be called subsidized. Airports and terminals are built for them, which is a staggering donation in itself.

The development and operation of air traffic control systems, and the personnel to manage those and countless other installations upon which airlines depend, are supplied free of charge. The Government weather bureaus are still the greatest sources of airline meteorological information. With the exception of space rentals and landing fees, which at best are mere token charges, airline operation meets its expenses out of the taxpayers' wallets.

It is in effect as if the Government were suddenly to assume the cost of construction, maintenance, and operation of the railroads' stations, rights-of-way, signal systems, and traffic coordination procedures. I doubt that the railroads would welcome that much Government intervention in their business, but it would be a fairer attitude for the Treasury to assume.

The subject of who is going to pay what and lose how much to further expand airline transportation is a touchy one indeed, but subsidization, whether direct or indirect, has underwritten airline growth, equipment purchases, payrolls, and even mismanagement with a generous and forgiving hand.

Your charge that some railroads are becoming increasingly vociferous in ads against airlines is hardly justified. As an advertising analyst, I know that airlines have made false accusations and gross misrepresentations in their advertisements against railroads.

There has never been anything even resembling a full-scale retaliation by the railroad companies. The closest approach to it was the dignified, and even humorous, series of advertisements which began with the famous "Short Course in Railroad For Airline Executives" sponsored by the Southern Pacific.

Advertising, however elaborate or solicitous, should be truthful, and it is not at all unethical for railroads to highlight the weak spots in air travel—such as dependability and comfort—any more than it is for airlines to commercialize on the advantages they have over surface travel.

Your publication is dedicated to air transportation, and you must therefore lend your pages to any words that favor airlines. You are in error, however, when you claim that people are victims of anti-airline propaganda. There is no such thing.

RAYMOND HANNON

26 Clive Street
Jamaica Plain, Mass.

OBITUARY

Charles Knobie

Charles Knobie, former assistant superintendent of air mail service for the Post Office Department and manager of mail and cargo for Capital Airlines immediately after the war, died December 12 in Washington. Knobie who joined the air mail service in 1920 as a clerk at College Park, Md., had been working for Arlington County, Virginia.

Opens Air Commerce Bureau

The Commerce and Industry Association of New York, Inc., 233 Broadway, New York 7, N. Y., has established a new bureau—the Air Commerce Department—to provide day-to-day service to domestic and international airline operators, aircraft builders and affiliated manufacturers. Daniel H. Ecker, formerly executive secretary of the Aviation Section of the New York Board of Trade, has been appointed manager of the new bureau.

Omnirange Report: CAA's Office of Technical Developments has published Technical Development Report 72 titled "The CAA Low Frequency Omnirange." The 10-page bulletin describes theory of operation, ground and flight equipment, general testing and conclusions relative to this equipment.



En Route

WAYNE W. PARRISH

AIR LOG. Early in November I had a letter from old friend **Charlie Gallo**, now president of Air Express International. Charlie said he liked *En Route*. "Your column will prove to be a living testimonial to the advantages gained from the use of air transport in making this globe of ours a small place," he said.

Those were rather high-sounding words, thought I, considering that the column was started primarily to give a chatty outlet for the odd places I've been to and the aviation people I see. But the second paragraph of Charlie's letter started me thinking. He suggested that I recite a list of the places I've been to this year as an illustration of what one can do by airplane.

I got out my air travel log and looked it over. How time flies in this aviation business! I had forgotten that it was this year, and not last year, that I had flown to Berlin on the air lift, and that it was this year and not last that I had grasshoppered over Texas on Trans-Texas Airways.

The log shows, in fact, that I had flown to Europe three times and to South America three times and had flown almost all over the U. S. A. making speeches and attending conventions.

For some years I've been keeping a rather accurate record of my trips, using the official CAB mileage book as my guide. I've found out the hard way that it takes a heap of traveling to build up 100,000 miles and I've concluded that most of the so-called records established by business men and others are largely fictitious. I read the other day that one business man claimed to have flown 2,500,000 miles in 25 years and I just don't believe that such a feat is possible.

99,000. Most of my friends think I've flown millions of miles and including many times around the world, but with all the air traveling that I do, the total for the past six years comes to no more than 405,000 miles and I've yet to fly around the world.

For the year just closed the total is exactly 99,000 miles by the CAB mileage book. Not 90,006 or 89,877, but exactly 99,000 on the adding machine. For the first six months I averaged almost exactly 10,000 miles a month, but I fell behind during the last half and, due to office work, haven't flown since November 19.

The six trips outside the U. S. took 82 days and comprised 68,847 miles. The other 30,000 were within the U. S. and covered a lot of hopping around between the two coasts.

But with all of the 99,000 miles, I flew on only 17 airlines in addition to MATS, and in eight commercial-type airplanes plus the big Douglas C-74 (from Frank-

furt to Bermuda and a real thrill).

The tremendously exhilarating kick I get out of the airplane is the ability to hop in a few hours from one climate to another, from one season to another, and from one language and national atmosphere to another. I am convinced that the airplane is the road to One World although I am not hopeful that this historic road will be traversed easily or rapidly. But the airplane makes a mockery of borders, terrain barriers, nationalistic red tape and all the rest of those things that have kept the people of the world apart for so long a time.

BERLIN FIRST. The year 1949 started with a flight to the Miami air maneuvers in January. Next month **Fred Glass** (now with the New York Port Authority) and I flew to Frankfurt and Berlin to see the air lift. That one week's trip was something I'll never forget, especially the unending stream of C-54's and the radar traffic control set-up at Tempelhof in Berlin. It was a cold, grim week, a quick glimpse at the cold war and a vision of what the transport airplane can do in the way of carrying vast quantities of cargo.

Within one month I was far away from the wintery north with Braniff Airways in South America and although I was a bad boy and missed the Rio inaugural by getting delayed on a side-trip into the Amazon with Faucett Airlines, I enriched my experiences with a glimpse at the interior of the South American jungle. It was just a moving-picture glimpse, to be sure, but without the airplane I would never have had a conception of that awesome, impenetrable Amazon basin or of the life led by the people in that area. In 10 days I did and saw things which mortal man of 20 years ago couldn't have seen without a peck of time, trouble and hardships.

A month later, in April, I was off again to South America, this time on the long haul to Buenos Aires with National and Panagra. I left New York on a Tuesday afternoon in springtime, had breakfast and all day in Lima, Peru, then on to Buenos Aires on Thursday, where it was fall, inspected the big new airport there on Friday, left there at noon on Saturday and arrived on Sunday afternoon in Oklahoma City for the annual meeting of the American Association of Airport Executives. Breakfast at the fine Alvear Palace Hotel in Buenos Aires, dinner after leaving Lima, breakfast just before reaching Miami, luncheon in New Orleans and dinner in Oklahoma City. Nothing to it. Comfortable and routine. Spring to summer to fall to summer to spring in five days.

Early in June **C. E. Woolman**, Delta's president, and I, took off for a 16-day

trip to Scandinavia and the Continent that took us up to the North Cape, northernmost point in Europe and at the opposite end of the world from Buenos Aires. It was "summer" but the ice and snow on the mountains looked cold in the rays of the midnight sun and the steam heat in the hotel at Tromso felt good.

WINTER IN B.A. As luck would have it, I stayed in Washington the entire month of July, the hottest July on record. It was miserable and I dreamed of winter in Buenos Aires and the ice and snow of northern Norway. But there was a compensation. **Eddie Rickenbacker** invited me to go on his 30-day tour of South America so on July 30 in the midst of Washington's sweltering heat wave I carried a top coat to the airport and headed south hoping that I'd have ample use for it. I did. When we reached Uruguay it was winter and I felt sorry, so sorry, for the people in Washington.

I find that air travel has its amusing domestic situations although it seemed perfectly natural at the time. In Buenos Aires I called my wife to learn of her plans to fly to Europe so while I was finishing up the Rickenbacker trip in South America and Mexico she was in various parts of Europe. On September 10 I met her in Prestwick, Scotland and we went to the Hague to cover the IATA meetings and spend a few days sightseeing and visiting in Holland and Denmark.

Long-distance air travel can be amazingly simple. If I arrive back in Washington during the day I leave my bags at the airport and go directly to the office and start working. In June I had a very delightful lunch at the George V Hotel in Paris and was at work in the office at noon the next day. In September I spent a full evening with friends at Copenhagen's Kastrup Airport and was at my desk the next afternoon. Of course there is nothing unusual about this for a good many aviation people and yet I have been surprised how few airline executives take advantage of the airplane except on their own lines. But I guess they don't get the kick I do out of dropping in on different places.

SAMPLING. I suppose I'm what the Germans call a *haferikuker*, a meddler in the kitchen who is always testing and sampling without knowing anything about cooking. My travel, I admit, is largely on the superficial side. I get a lot of nibbling and sampling but few heavy meals. Yet I would rather have that brief glimpse of *Hammerfest*, the world's most northern city, than to gaze at its meaningless name on a map and have no conception whatever of what that far northern town is like.

It is probable that I will never again fly as much as 99,000 miles in a single year. But I will continue to use the airplane as the key to a better understanding of peoples and places on this shrinking globe—and to seeing and doing things that were impossible to see and do just a few years ago. If 1949 proved anything to me at all it is that the conquest of the world by the airplane is just in its very earliest stages.



Convair XP5Y U.S. Navy Flying Boat

New U.S. Aircraft Engine

Navy sponsors most powerful propeller-type engine ever cleared for flight!

A new American aircraft engine — the most advanced type in the world — is now revealed by the U. S. Navy. It's the new Allison XT40 *turbo-prop* which develops more horsepower per pound of weight, with good fuel economy, than any propeller-type engine ever built by any nation. The engine currently is rated at 5500 horsepower.

The new Allison *turbo-prop* will enable any propeller-driven aircraft — for the military services or commercial airlines — to fly faster and carry increased pay loads over longer distances at higher altitudes.

This outstanding performance is accomplished through the engine's high power, small size and light weight. Yet, fuel economy comparable to the best present-day commercial engines is retained.

Horsepower-to-weight ratio, including extension shafting and reduction gear, is double that of our best present-day reciprocating engines — actually more than two horsepower per pound of engine weight.

The new Allison XT40, consisting of two super-powered gas turbines, achieves these important results through high-compression ratio and the flexibility of the twin power plant.

By outperforming reciprocating engines now in use, this new *turbo-prop* engine becomes a highly valuable stablemate for the turbo-jet engines which power today's very high speed military airplanes. Both these turbine-type engines use the same low-grade, readily available fuel; they do not need high-octane aviation gasoline.

The ease and flexibility of installation of this type engine are demonstrated by its first application in the Navy XP5Y Convair flying boat. Designers can utilize this compact, more powerful engine in all types of aircraft — both military and commercial — to gain improved range and performance.

One more Allison, a world leader in aircraft engine development and production, has made an outstanding contribution to help keep America first in the air.

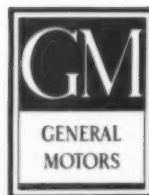


**ALLISON XT40
TURBO-PROP**

Compare the small size of this engine, developing 5500 horsepower, with the man in the photograph above

Allison

**DIVISION OF
INDIANAPOLIS, INDIANA**



Builder of the famous J33 and J35 turbo-jet aircraft engines



**MORE
PROFIT
"ON THE
LINE"**

TEXACO AVIATION LUBRICANTS AND FUELS give you **3 big advantages:**

You make your service line more profitable when you handle Texaco because (1) fliers throughout the 48 States know and trust the Texaco name; (2) there is a complete line of *Texaco Aviation Lubricants and Fuels* to meet every need; and (3) *Texaco quality* has been proved by millions of

Personnel of Keith Kahle Aviation at Will Rogers Field, Oklahoma City, take pride in giving quick, courteous and competent service. In-and-out time here is short. Experienced, licensed mechanics have every facility for repairs and overhauls. *Texaco Aviation Lubricants and Fuels* are used and sold exclusively—and have been for more than ten years.



Speaking as both fixed base operator and President and General Manager of Central Airlines, Inc., Keith Kahle says: "Texaco has time and again gone out of its way to help us simplify our lubrication and maintenance procedures and organize them efficiently. This freely rendered service and the reliable quality of Texaco Products have been big factors in building a profitable operation."

miles of superior performance.

Line up with the leaders and handle Texaco. Texaco is preferred throughout the industry . . . by progressive airports, by leading engine and aircraft builders, and by the airlines. In fact —

More revenue airline miles in the U. S. are flown with Texaco Aircraft Engine Oil than with any other brand.

Let a Texaco Aviation Representative show you how Texaco can build business for you. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, Aviation Division, 135 East 42nd Street, New York 17, N. Y.



TEXACO Lubricants and Fuel

FOR THE AVIATION INDUSTRY

TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.